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NEWS IN BRIEF

Maharishi in factories bid

MAHARISHI Mahesh Yogi's followers in the UK are asking the National Enterprise Board and other public and private sources of funding for money to take over or set up factories to combine manufacturing with transcendental meditation. They are hoping to make a bid for the recently closed Meccano factory in Liverpool, to combine new electronic products with some of its existing range.

Under the scheme, employees would work for six hours each day and practice meditation for the other two, on full pay. The effect of their meditating would "increase integrity and harmony in the collective consciousness of the whole nation," a spokesman for the Age of Enlightenment Company Ltd told CW.

There is already considerable expertise in electronics among the Maharishi's followers worldwide, the spokesman said.

MD resigns

FOLLOWING the resignation of Sir Robert Clayton as chairman of fledgling semiconductor manufacturer GEC-Fairchild, the managing director, David Marriott has also resigned. He has also quit as a vice-president of Fairchild Semiconductor in the US. Murray McLachlan is acting as managing director.

£7m order for GEC

THE Post Office has placed orders worth £7.8 million for 30-channel pulse code modulation equipment from GEC Telecommunications. GEC's orders now total over £14 million.

Look into future

A SMALL exhibition now at the Design Centre, Haymarket, until March 8 aims to show the general public what offices will be like in the future. "Tomorrow's Office Today" includes one small business system, one screen word processor and the Microwriter hand-held WP.

COMPUTER WEEKLY

Rising costs kill Chaps cheque clearing project

CHAPS, the Clearing House Automated Payments Scheme, has been killed more than 18 months after many of the smaller banks, that would have had to use the system collectively, expressed "extreme concern" about its cost and efficiency (CW, August 10, 1978).

Scrapping the project, just a few months before it was due to go live, has cost the 12 major UK banks that were funding the system more than £2 million.

In addition, they will have to compensate the main Chaps contractor, ICL, for the cost of supplying a lot of terminals to prospective users.

Chaps steering committee chairman Chris Gibbs said: "We are willing to talk to ICL if they are out of pocket."

Chaps would have been run on an ICL 2980 which had already been installed at the Bankers Automated Clearing Services centre at Edgware.

Middlesex. This will now have to be returned to ICL. Chaps would have handled "same day" transactions involving large payments between dozens of banks, a job traditionally done by messengers. Chaps would have complemented the existing BACS system at Edgware which handles high volume direct debit transactions.

According to Gibbs, the Chaps steering committee decided to

carry on with the project 18 months ago despite the objections from potential users because additional costs were not anticipated such as the cost of data encryption hardware for terminals.

In addition, the whole concept of basing Chaps on a central system was now seen as rather outdated and any future system would probably involve a network linking user banks' computers.

Big boost on the way for IBM business market

MAJOR product announcements in business computers, the 4300 series and the 8100 communications processors are expected from IBM this year, with the launch of the H-series of top-end machines likely in the last quarter.

This was the consensus which came out of the C/IS-Yankee Group conference. The IBM Impact, in London (see Software File, page 7).

In the business computer area, a cheaper System 33 compatible with the System 34 is expected, and a System 38 is also planned.

There has been much debate whether this will be an upgrade for the System 34 or a small System 38. Given the problems with the System 38, the former is now believed to be more likely.

System 34 and System 38 are incompatible; the operating sys-

tem of the 38 is new and is part of the fall-out from the Future Series Big Bang. Future Series, which should have taken over from the 370 in the late 1970s, was abandoned in 1974.

The RPG III on System 38 is a very high level language needing considerable recompilation of RPG II programs from System 3 and System 34. Further in the future a System 40 to provide an upgrade path for System 38 users is likely.

In the 4300 line, a machine above the 4341 and dubbed the 4351 is considered a certainty, as is a model between the 4331 and 4341. The latter machine could be offered as a field-upgrade for the 4331 and has been dubbed the 4336.

Commentators are certain that a 4321 or 4325 exists and that, if announced, it would have an important role to play in IBM DP Division's attack on the office automation market, but IBM might decide to kill the product if it turns out not to fit in with marketing plans.

Another important product waiting in the wings is the electronic digital version of the 3750 telephone switching system.

Dubbed the 4750, this product could mark IBM's entry into the private telephone system market in the US — the 3750 and 1750 systems have never been announced there — and would plug a gap in its communications processor product line.

between the 3705 front-end processor and the traditional 3750 telephone system.

Price cuts on DP division's 3730 shared logic word processor are expected this year, coupled with an announcement

of word processing under the DPCX operating system on the 8100 distributed processor.

Native mode DPCX word processing is also under development but is not likely to be announced this year.

Computer quangos expected to go in government cuts

ABOLITION of the Computer Board for the Universities and Research Councils and the transfer of its functions to the University Grants Committee now looks likely, following a recommendation to this effect in the government's report on quangos (CW, November 22 1979).

Studies are going ahead at the board to see which of its functions the UGC could handle, which the UGC could not cope with, which the universities could carry out themselves, and whether the change might lead to more administrative work. Some or all of the board's technical staff could be transferred to the UGC. Their job is to advise on the purchase and operation of university computers.

Other quangos being abolished following Sir Leo Pliatzky's study include the Police National Computer Policy Committee, which was

set up to advise on the original design of the PNC system, and the Department of Industry's advisory board on electronic components and automation. The Computer Agency Council, which advised the Central Computer Agency, was wound up last summer.

The Council for Educational Technology is being retained, but its work is to be the subject of a "searching review". Public funding for the National Electronics Council is to be phased out.

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\$175,000 price cut with AS/3 re-launch

TO remain competitive with the IBM 4341, National Advanced Systems has introduced an enhanced and less expensive version of its AS/3.

In line with its policy of retaining the machine's price, the AS/3000 has been re-launched at a new price of \$175,000.

The AS/3000 has a new system console and a more compact design. The basic two megabyte machine costs \$425,000, compared with \$600,000 for the AS/3000. The AS/3000 was launched last year.

National has also announced the big IBM compatible processors built in Japan by Hitachi (CW, January 13). National, the three field upgrade machines are based on the Hitachi processor that was built by Intel as the AS/6.

The AS/7000 offers more than twice the throughput of IBM 3031 and comes up with up to eight megabytes of main memory and eight channels.

While the AS/7000 competes with the IBM 3032 by about 65%, it comes up with up to 14 megabytes and 10 channels.

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Briefing

Inmos waits for £25 million

NO decision has yet been taken by Sir Keith Joseph on the second £25 million funding for the NEB semiconductor venture Inmos. Sir Keith is still awaiting the results of a study of the project being carried out by the Industry Department, but a DoI spokesman said there was no immediate sign of this being completed.

For Inmos it was said that the company was still within the timeframe for building the factory at Bristol (CW, January 13).

Takeover date

SUBJECT to some formalities the Gamma Group will be taken over on February 11 by PRC International, the big US-based consultancy that opened talks with the financially troubled systems house about a month ago (CW, January 3). PRC is putting £500,000 into Gamma, a sum that will give it a 100% holding and pay Gamma's debts.

Closure accepted

STAFF at ICL's Dukinfield factory have voted to accept the company's plans for closure of the site by the end of this year. The decision was taken at a mass meeting held this week after alternative proposals contained in a union report to ICL were rejected. About 800 staff will lose their jobs. A further 100 will be found work within ICL.

US introduction

A NEW French-built Level 64/DPS model has been introduced in the US by Honeywell as the DPS 330. It supersedes two models announced there last year as the DPS 320 and DPS 350.

NCR moves

NCR is making preliminary moves into the office systems field with the recruitment of staff for a word processing development group at its microcomputer and communications centre in Columbia, South Carolina. What products will be made is not yet known, except that the company aims to meet requirements for office information processing as well as DP.

Currys microres

CURRYS is still evaluating "eight or nine" microcomputer systems for its new computer retailing venture, says director Robert Webb (CW, November 13, 1979). He denied that Currys had decided on two systems from Japan, the Sord and the Panasonic, and said four of the systems would be sold by the chain.

WP training centre

A TRAINING centre for word processor operators has been established in London by Rosemary Pratt, under a grant from the Department of Industry. Pratt is also running courses for WP supervisors in association with ICRF Management Studies Centre.



Spangle to be Memorex chief

New chairman and chief executive of Memorex is to be Clancy Spangle, now president of Honeywell Information Systems and, since 1969, the guiding light of Honeywell's computer operations.

His successor as president of Honeywell computer operations is to be Steve Jerritta, formerly managing director of the UK subsidiary until 1978. Spangle, who was involved in Honeywell's acquisition of GE's computer interests, and saved the company through a bad patch in the early and mid-1970s, takes over from Robert Wilson at Memorex. Wilson turned Memorex around after a disastrous entry into the mainframe business in the early 1970s.

NEB chiefs back Insac Products

THE National Enterprise Board has announced that its new directors have confirmed the board's continued backing for Insac Products, the NEB's overseas software marketing company.

Insac Products has had a shaky start since it was set up late last year, mainly because of the resignation of two members of its board, Len Taylor of Logica and Peter Adams of SPL.

Despite the NEB's statement, Logica said it was still not clear about the future role of Insac Products and that the appointment of a new Logica member for the Insac Products board was still not a certainty.

Insac Products is currently considering the possibility of allowing software companies in which the NEB has no share to become members of Insac.

They might be allocated some of Insac's £20 million funds for software development or promotion in return for a share of the profits generated by the product. But Insac Products could face the danger of a conflict of interests if a new member's product was similar to one of Insac's.

Turn to back page

Print-out not admissible in criminal trials

A SERIOUS gap in the law has been exposed by the decision by three Appeal Court judges that computer print-out is not in itself admissible as evidence in criminal trials.

A great deal of interest and concern about the court decision has arisen among barristers and organisations concerned with accounting and security.

Barrister Alistair Kelman, who takes a particular interest in computer matters, is to press the Law Commission to draw up amendments to the Criminal Evidence Act 1965 to deal with the problem. However, until this is done there will be "severe consequences" for many criminal actions.

Kelman says, if they involve the increasing number of systems that generate records automatically, building security systems, voice analysis and so forth.

The Appeal Court hearing involved a prosecution for burglary in which bank notes found in the accused's possession had serial numbers allegedly part of a series that were in a stolen bundle. The numbers came from the Bank of England on a list produced by a note counting machine.

The problem was that the Criminal Evidence Act specified that the only admissible written records are those made by a

human being of his own personal knowledge. In the case of the machine, the judges said, the operator could not be said to have had personal knowledge of every number the machine recoded automatically, and therefore the print-out was inadmissible.

The conviction for burglary was quashed. The judgment does not affect civil actions, as print-out is specifically allowed as evidence under the Civil Evidence Act 1968.

Lord Justice Bridge, in giving judgment, suggested that a gap in the criminal law had been found, but until it had been amended by Parliament, print-out produced automatically would be inadmissible.

More councils desert ICL

THE two latest local authorities to switch from ICL to Honeywell computers are Leeds City Council and the Manchester City Council, the latter being offered a DPS 8/52 system which is not yet marketed in this country.

Univac, IBM, ICL and Honeywell all competed for the Manchester City order but Univac and IBM left the running early. Univac because it was rejected and IBM because it is believed to have got cold feet and felt its chances of winning over a Labour-controlled council were small.

It has also been suggested that Honeywell was eliminated at an early stage in the proceedings but was later asked to re-tender.

In addition to the surprising offer of a DPS 8/52, Honeywell suggested that the council could go initially for a Level 66/DPS 52 and then move up later to a Level 68/DPS 300.

ICL on the other hand offered a dual 2972 configuration. One source estimated that this would have cost about £1.3 million more than either of the Honeywell systems.

The Leeds order is a major

blow to ICL as it is the local authority which took part in the development of the Local Authority Management Information System, LAMIS.

Leeds has decided to replace its two ICL 1900s with an unspecified Honeywell Level 66/DPS system valued at about £1 million.

Last year Labour MPs protested in the Commons about the plans of another Manchester council, the Greater Manchester Council, to buy an IBM system as a replacement for its ageing IBM 380/50.

Gerald Kaufman (Lab, Ardwick), former Industry Minister, led the MPs in "deploring and opposing" the decision largely because ICL has a big stake in the city and had at that time just announced its Dukinfield factory was to close with an expected loss of 800 jobs.

While the opposition had little effect on the Greater Manchester Council's plans, a similar criticism has now been made of Manchester City Council since it has chosen a Honeywell system to replace an ICL System 4. An ICL spokesman declined to comment on any of the orders as he said the company had received no official rejection from the authorities involved.

Bureau to spend \$1.4m

CONFIDENCE that demand for both batch and online bureau services will continue in the long term has led the Data Sciences International bureau to order three ICL 2955/10 computers worth £1,300,000.

It will also invest £100,000 in the development of OPAS, a software package for order processing, accounting and stock control. The latter will be the first module and is due to be released in October.

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PMA

Surcharge 'unfair' say travel agents

TRAVEL agents equipped with the well established Datasab ticketing and accounting minicomputer system, TAS, have joined with Datasab in a campaign to the Office of Fair Trading about the activities of Travicom, the airline seat reservation service majority owned by British Airways. The service provides online access to the reservation systems of about 20 airlines.

The main complaint is about an extra £250 a month charged to Travicom users if they do not have a ticketing and accounting system supplied by Travicom. The Travicom system DPAS, is based on a Digital Equipment PDP-11 and is built and maintained by Computer Communications, which owns 10% of Travicom.

Datasab was supplying TAS systems to travel agents well before the Travicom service was introduced and has 35 users.

Chairman of the TAS user group, Colin Mann of London-based Remond Travel Services, told Computer Weekly that he believed the £250 extra charge to be completely unjustified because the use of a Datasab system put no extra load on the Travicom system.

Brain called the Travicom charge "greedy" and said that his group would take its case to the European Commission if the complaint to the Office of Fair Trading failed.

The only comment from

Turn to back page

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Downtime

by Chad

A match for ten ladies?

YOU may have seen Clive James' scathing attack on the brontosaurus antics in Strasbourg, on Russell Harty's programme the other day. One thing the silver-tongued Antipodean did not scathe though was the activities of the middle-aged ladies he showed sitting around a revolving turntable, collating endless pages of bumph.

"Zounds!" I'm sure you cried as did I, "we know the French are backward but have they really not heard of collating machines? No wonder we are having to pay an extra billion pounds a year to finance these steam-driven bureaucrats."

I can report now, however, that the problem is not a simple one of ignorance. The ladies in question have a New Technology Agreement with the EEC.

Now you will be aware that the essence of these agreements is that nobody may be made redundant by new machinery (anything that is 30 years old is new in Strasbourg).

But don't worry, I am sure they will manage soon. Any people who can make the Common Market regulations on duck eggs stretch to 12,000 words should have no trouble.

Since the machine can do the work of, say, ten ladies the Eurocrats are having to find a way of generating ten times as much bumph as at present before they can bring in the new equipment.

Most of us have seen such tables for chemistry, physics, medicine, pharmacy, mechanical engineering, electrical and electronic engineering, building technology and almost any well organised discipline.

The only discipline where I have had some difficulty finding anything resembling technique attribute tables is within the software engineering area. I hasten to remind the reader that I include dataware as well as all "logicware" in my own definition of software.

We have a great many publications and writings, and some of these writings even stretch themselves as far as comparing their pet idea in suitably vague state-of-the-art terminology ("better maintenance") with a limited and selected number of easily dismissed obsolete methods. We even have some publications which compare products on a functional basis.

DPF is one of the better known US third party computer lessons, and my colleague fully expected to read a tale of woe about the trials and tribulations of the losing business.

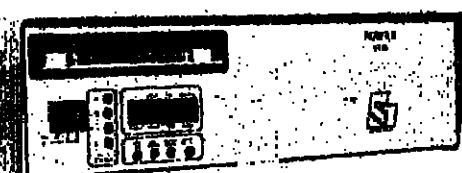
Not so. On reading the story he discovered to his surprise that DPF is also in the baked goods business and, according to a quote from a DPF vice-president, the big drop in operating profits was caused by a fast rise in the prices of baking ingredients and skyrocketing fuel costs.

At this stage I could make some old quip like "That's the way the cookie crumbles." But I won't.

"Secretaries won't be put out of work by silicon chips," we keep hearing these days. "The boss will always need someone to make the tea." This puzzle me. Can someone please explain why it seems beyond the capability of all this wonderful modern technology to devise a machine that can make a drinkable cup of tea? I am sure in Japan they will soon have robots dressed in kimono that will carry in the trays for the tea ceremony and how as they serve you. But the tea itself will still taste like washing-up water.

Well, all you have to do is wait for a few people to walk in and out and you'll have plenty of mash for lunch!

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GILB'S MYTHODOLOGY

Storing and spreading know-how

ONE component of the Design by Objectives method, which I have mentioned in earlier columns, is the source of the design ideas for giving a system the attributes desired. I call this source of ideas a Technique/Attribute Table — T/A table.

The basic idea is simple and well known in other technical disciplines. A group of similarly intended techniques, for example all known program maintenance techniques, are listed on one or more pages. In addition to the name of the technique, some data is given about the range of values that can be expected for various interesting qualities of the technique, and the costs of using the technique. References to further detailed specifications should also be given.

Most of us have seen such tables for chemistry, physics, medicine, pharmacy, mechanical engineering, electrical and electronic engineering, building technology and almost any well organised discipline.

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FOCUS

Get fit for the power game

BY now the DP industry should have got the 1980s message. Commentators, pundits and industry leaders are all agreed that the going will be rough and tough.

Only the fittest will survive and only then those with high level skills in data and word processing, micrographics, telecommunications and related areas of information systems.

Not only has DP management to grapple with the new technologies, it is also having to do battle with company colleagues. Only as a result of certain combat will it be established who will direct the merging of company and office information technologies.

Just about the only non-competitive starters in the corporate race for power would seem to be the tea lady and company car park attendant. It is becoming essential for DP managers to keep not only on their mettle, but on their toes. Of the two requirements, tea keeping would seem the more vital.

According to the latest issue of the newsletter British Manager, fitness, both mental and physical, is a critical attribute for management. Attention to fitness is guaranteed to boost the efficiency and performance of the individual.

But achieving a fit mind would seem more difficult than acquiring a fit body — particularly for the average DPM. Where energy and fitness are involved, probably the DP manager has few equals. Rarely is he allowed any time to relax. Before he has time to settle down with his morning coffee and latest copy of Computer Weekly, he is summoned urgently to the operation room. Yet another tape drive has gone down, the engineer's phone seems out of action and the air

One of the reasons for this situation is simply that we have not yet developed the habit of measuring the attributes (or most of them) of technologies. As a simple example, everybody talks about the improved maintainability of the various types of "structured programming", but have you ever seen a number indicating that anybody has ever actually measured any of their assertions?

A few examples do exist but they are few and at least 95% of the people who should be informed about the expected results are not so informed. Let me be even more specific about the attributes we should document for our software technologies. The exact list for any set of techniques depends on the nature of those techniques. But this list will give you some idea of what I am recommending.

We should include attributes such as effect on maintenance time, effect on maintenance accuracy, reliability, probability of detecting errors, probability of correcting errors, degree of portability to various other software/hardware environments, availability and ease of human learning to use.

Also, we should add expected productivity in use, effect on development cost of system in which used, degree of demand on hardware resources, degree of conflict or interference with other techniques with which it might be used.

The objective of such tables is not necessarily to give exact knowledge. This is not only difficult to do because of our primitive measuring technology, but also because each technique must necessarily interact with many other techniques in a complex system of people, machines and software.

As Gordon Glegg aptly warns us in *The Science of Design* (Cambridge, 1973), "We never like to be far from some engineer's handbook and very useful they are too. And very dangerous."

The objective is to improve our ability to identify technological solutions which might be promising for our purposes. Add, at the same time, the objective is to warn us of potentially harmful side-effects of that technology.

Glegg is careful, in his short and readable booklet, to warn us not to believe blindly everything in such books and in particular

conditioning has gone on the blink. On the way to the crisis, the DPM is waylaid by the systems manager. Users are growing restless about the VDU response time and workloads are expanding fast. The DPM promises a full-scale meeting with all parties.

Sidestepping this problem, the DPM runs into the next hurdle, a mound of stationery randomly dumped in the corridor. It seems there has been a mix-up and three months' supplies have arrived in one delivery. Pausing only to clear a path, the DPM finally makes it to the machine room only to discover he is urgently required back in his office.

In the United States, DP teams are encouraged to participate in lunch-hour jogging sessions. In the UK, however, the average DP team would be so exhausted, after having dealt

with a normal morning's workload, that even a foray to the local inn would prove too strenuous.

It is hardly surprising that the DP profession is noted for such placid hobbies as kite flying or eagle watching on Hampstead Heath.

The same article features the benefits of such tension-reducing manoeuvres as self-hypnotic relaxation, transcendental meditation and yoga.

Most DP teams are already hypnotised by the amount of work to be got through by the end of the day.

Further advice in the article is to sit or lie comfortably, let your eyes close, but imagine that you

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Tom Gilb is an independent consultant, lecturer and author on computing topics.

not to assume that what is for many applications the technique is going to be best for your particular situation.

You must validate the technique in various ways (materials, experience) before you can know how useful it will be.

What are we losing now? We do not have a tradition of collecting technical knowledge about software in *Technique Attribute Table* format. We have, up to now, lost a valuable way of training system designers (system engineers, system architects) for the parts of our systems. They are forced to learn a few of the existing techniques during initial studies, although they never been given the simple attribute specification for them.

They will, by years of experience, get a feel for the attributes of the techniques. They will provide us with pleasant failures while they learn about all the attributes.

Finally it will be regretted for designers to update their know-how base, except some primitive manner.

First shots in micro price war

THE skirmishing in the microcomputer market between Microsense, UK master distributor of the Apple II computer, and ITT Consumer Division with its Apple-licensed 2020, could soon end up as a full-scale price war. This is at a time when ITT is gearing up for a major push into the marketplace.

The beginning of February sees Microsense dropping the price of a 16K-byte black and white Apple to a suggested retail price of £895. ITT, according to marketing manager Graham Pybus, is still considering its response.

Pybus said last week, "We can't understand their motives in cutting prices. It seems to be to nobody's advantage to cut operating margins."

The Microsense price drop coincides with a corporate decision by ITT to make a significant impact in the microcomputer market. "We have been testing the market till now," Pybus said, "but from now on we are going to be much more aggressive."

This aggression will come in two forms. Firstly, there is now a commitment to increase the production rate of the 2020, a licence-built Apple II. ITT can, according to Pybus, readily double the production rate for the system, but he said the rate would increase to match the market growth. This will be backed by the introduction of a

250K-byte double-sided, single density mini-floppy disc drive, due in six weeks. Later, a half-megabyte drive will be launched, though it is undecided yet whether it should be a dual density mini-floppy or single density 8-inch unit.

The second area of ITT activity is software. The company is spending about £500,000 over the next 18 months with the aim of producing 16 new business applications programs. Working in collaboration with BOC Microcentre Developments, and liaising closely with Apple in the US, ITT has been obliged to invest this money because of the incompatibility and unsuitability of much of the Apple software packages for both the UK market and the 2020.

The first packages to be released, a set of general business ledgers, should be available from March.

According to a Microsense statement on the price reductions, Andre Sousan, president of Apple International Operations, said, "The price reduction results from the level of cost effectiveness that our sales volume in the UK has allowed us to reach."

This looks like an attempt to follow the classic semiconductor components price-learning curve. Its applicability to systems selling is as yet uncharted water.

ITV plug for Prestel

PRESTEL's big boost is to start on March 24 with a two minute advertising slot in ITV's News at Ten every night for a week. This will coincide with a big push at Viewdata 80 at the Wednesday Conference Centre with a film, lectures and demonstrations of the Prestel service. Expenditure on promotion is planned to total £1 million for March and April alone.

Online law library needs £150,000 a year

MOTIVATION, education and innovation are the three tasks facing the National Law Library in its efforts to promote online retrieval of legal information, said the organisation's president, Lord Scarman, a Lord of Appeal in Ordinary at the Library's official launch.

The library (CW, January 24) was appealing for funds which it is estimated will need to be about £150,000 a year. Also lending his support to the appeal was Lord Denning, Master of the Rolls.

Deciding what users need and persuading operators of online services to provide it will be a major task of the NLL, Lord Scarman said. Privately, how-

ever, some law publishers have responded that they already know what their customers need and that an extra charitable body is unnecessary.

The library's funds will be used to finance research, the development of a pilot database on tax law, and an educational tour of England and Wales to introduce the idea of online retrieval to solicitors. Establishing standards is of particular interest.

Lord Scarman suggested that online information on laws would be useful to other people in addition to lawyers, for instance Citizen's Advice Bureaux.

Not to seek compensation

LOGICA has stated that it will not be seeking any compensation following the cancellation of the Clearing House Automated Payments Scheme. Chaps (CW, January 24). Logica and ICL were the two main contractors on the Chaps project and ICL wants compensation for the cost of installing terminals. Logica's contribution to the

project involved personnel only, and they were paid on a month by month basis. For this reason Logica is owed no money by the Chaps steering committee, the organisation representing the 12 big UK banks that were funding the project.

Logica says that the people working on Chaps have all been found new projects to work on.

Nixdorf turnover up 23%

NIXDORF Computer, the West German small systems manufacturer, has announced that turnover rose 23% to DM 1,230 million in 1979. The figure is equivalent to £730 million.

The company forecasts another 20% increase in turnover in 1980. Founder and head of the company Heinz Nixdorf reported that the company is to make a big push in communications, which currently makes up about 20% of its business. Communications products include the data telephone, an internal telephone switch, plus points of sale and banking terminals.



Ferranti fire under control

FERRANTI was prime contractor on this fire service control room for the Greater Manchester Council — and soon after it was in full operation Ferranti itself suffered a fire on its Gem Mill site. Five fire engines were sent from four different stations.

The control system is based on a 128K-word Ferranti Argus 7000 minicomputer and is claimed to be the first successful implementation of computer-based control in any fire service. Trials of computer-based systems in Surrey and Smithlyde in the early 70s were discontinued because they gave no advantage over previous methods.

Response time is quicker with this system only when the service is very busy. Under normal operations the benefits are more reliable location of any one of the city's 60,000 streets and more efficient deployment of resources.

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PAGE SIX for programmers and analysts

Does your physical appearance brand you as unemployable?

APPEARANCES can be deceptive, but as anyone who has ever been for an interview knows, they can also be very important. An interviewee has about half-an-hour to project his personality and ability, and when he has left the prospective employer is going to remember vividly something as trivial as a spot on the face or a slight provincial accent.

Imagine, then, being slumped in a wheelchair without the use of arms or legs, and with speech so badly impaired that the interviewer can hardly tell what you are saying. For a disabled person the battle to project potential through external appearances is not just nerve-racking; it is a nightmare.

A handicapped job-hunter has to make a tremendous impression on the employer to convince him that he is employable, let alone capable of doing the job in question. Unfortunately the situation usually results in the interviewer being just as nervous as the interviewee, if not more so.

Geoff Busby is the education officer of the BCS Specialist Group for the Disabled, of which he is founder chairman, and being severely disabled himself knows all about this kind of situation. At present a computer programmer with GEC-Marconi, he is well acquainted with the strain, embarrassment and heartache that people like himself suffer in their search for work.

The BCS Disabled Group was formed in March, 1975, and since then Geoff has been involved in helping the disabled find jobs and publicising their case among employers.

The subject is a sensitive one which many employers choose to ignore. If a disabled person wants to work, it seems a satisfactory remedy to most people that he should occupy his time by weaving baskets or with some other pastime traditionally associated with those who are incapable of doing an ordinary job.

This attitude suggests that someone who does not have the use of a limb is equal in terms of usefulness and mental capacity to a cabbage. Anyone who wants to use his or her full potential and play a useful role in society is hindered by an alarming amount of prejudices and fears.

Geoff Busby's own story illustrates exactly what a disabled

person can do, given opportunity and determination.

Labelled from an early age as "unemployable", he took several steps to prove society wrong. During a stay at a Spastic Society centre in Buckinghamshire, Geoff saw a TV documentary about F International, the systems consultancy already featured on this page which employs housewives and other people confined to the house, including the disabled.

He took an aptitude test which gave him the encouragement he needed. After transferring to Oakwood College, Geoff and several others took advantage of a scheme offered by Ford Motor Company which was looking for disabled people to train and use as computer programmers.

Six of the students became trained and started doing freelance work for Fords. As there was not much work to do, in 1971 only two of the original team were left, but a year later the computer bureau Scicon came forward to help the group.

Geoff Busby is perhaps unusual in holding a job as programmer/analyst in spite of severe disabilities. As education officer of the BCS Specialist Group for the Disabled he also helps handicapped people to find jobs, and his goal is to make the BCS group unnecessary by changing employers' attitudes towards employing the disabled in computing.

and for the first time Geoff was actually making a living out of working as a computer programmer.

When Scicon moved to Milton Keynes, however, he once again found himself trying to persuade employers that he could be a useful full-time member of staff. He was unsuccessful until the formation of the BCS Disabled Group.

The BCS could not promise employment, but it could provide escorts for interviews, which helped Geoff at least to break through the initial stages of getting a job.

For the past four years he has been with GEC-Marconi where he is employed as a programmer, but does systems analysis work as well. Although happy in his job, he admits that "it isn't a challenge any more."

This is something which happens to disabled people. Finding a job doesn't mean their problems are over. Often they are just beginning.

"Employers are reluctant to employ disabled people at a high level," explained Geoff, "even if they are capable of doing the work. People are frightened of the attitudes of clients or even the reaction of colleagues."

So it is easy for an employer to take on a handicapped person and then conveniently forget about him — and that means forgetting that the person has just as much ambition and drive as, if not more than, a "normal" person.

But for the moment these are problems to be attacked in the future, and Geoff Busby and the BCS group have quite enough problems in cutting through the mass of red-tape which seems to prevent disabled people finding fulfilling careers.

Interview technique is only one of the obstacles the disabled person has to face, and if he has got that far he has already overcome many hurdles.

As chairman of the disabled committee Geoff found himself receiving three letters a week from people who had tried unsuccessfully to find work. Although he was involved with the BCS, he was not committed to finding people jobs in the computer industry.

So that people should be given the chance to find out if they were suited to that type of work or not, the BCS group ran an aptitude test. Then they tackled the problem of what to do with those who passed. Experience had shown that capability was not enough: there had to be training. A course seemed the



Geoff Busby with his manager, Chris Vickers, at work on GEC-Marconi's IBM 3277.

to be as independent and individual as you are at present.

The other myth is that there are people who can and people who can't cope with the disabled. Most of the "normal" members of the BCS Disabled Group had never come into contact with the disabled before, but things like feeding, pushing wheelchairs and getting bodies in and out of cars has now become second nature.

What about special aids? Not all disabled people require aids, pointed out Geoff, and where equipment is necessary employers can call upon the Employment Service Agency for finance.

Geoff was involved with the design of an aid known as Mate, memory assisted terminal equipment. This was developed by a team of computer engineers from the University of Essex, and basically it is a light touch keyboard which will fit into any standard teletype 33 terminal.

The light touch facility makes operation a lot easier for the disabled person who has to use a stick held in the mouth or, like Geoff himself, his nose, to depress a key. Also the Shift and Control keys lock for one character when they are depressed and a light tells the user which mode he is in. The light will stay on until either another key is depressed or the Reset button is pushed. A word-store feature, made up of PROMs which each consist of 18 words, enables the user to print a word and send it to the computer.

The whole package can be produced for about £300 and so is within the reach of the disabled person.

No-one, of course, claims that a disabled person is any more intelligent or better suited to working in computing than anyone else, although Geoff Busby pointed out that if one is disabled, one is forced to discipline the mind to find the most efficient method of working — which is why many disabled people do make good programmers.

One of the most remarkable features of problems like this is that so-called "intelligent" people in responsible positions have to be educated by Geoff Busby and the work of the BCS before they can appreciate that a disabled person may not look or even sound "normal", but still has a brain like anyone else.

Geoff has become professional in putting people at their ease fairly quickly — after all, that's part of his job. He admits that in interview situations he often ends up answering questions that he knows people want to ask but are too embarrassed to do so. There are usually practical questions such as how does a disabled person get to work, how does he answer the telephone, and how much assistance does he need from colleagues to perform ordinary everyday tasks.

Understandably, employers are concerned about these matters as much as a person's ability to do a job. No-one likes employing someone whom they feel may disrupt office procedures.

In Geoff's own experience he has always had great support and help from colleagues. He usually gets a lift to work, but if this is inconvenient takes a taxi.

Once in the office, he needs assistance in using the telephone, which has to be held to his ear, and also in writing down messages as Geoff cannot use a pen. He uses his nose to depress the keys on a terminal or typewriter.

With professional help as the BCS and the Mate Services Commission take active part in encouraging employment of the disabled, the hope is that the disabled will be regarded as "normal" people.

Geoff Busby admits the ultimate goal is to make society for the disabled necessary.

At the moment, of course, it is a dream. The BCS is carrying out a national survey to ascertain employer attitudes towards employing the disabled in computing, and match people looking for work with sympathetic employers.

Geoff has also got plans for Mate Mark II, which is a memory assisted typing system.

Certainly the disabled are looking for any favour. "I'm not looking for a handout," says Geoff Busby, "I want what we can do. And what do you have to do if you had my disabilities?"

"People push to the limit their minds the more they could happen to them, what would they do?"

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by Judith Morris

SOFTWARE FILE

Fortran 77 picked for 10 mbyte mini

At a time when Fortran is undergoing a major rethink and a potential change of image, the UK company is backing it as the language to be used in its new mini system, the Tri-Novum.

Computer Application Research plans to break into the mini market in a big way in the coming year, selling 10 megabyte configurations and upwards for a starting price of £10,000. The firm describes the Tri-Novum as "a triple processor mini with mainframe software at micro prices".

Although Cobol and Basic are available on the Tri-Novum, the firm chose the I/O Fortran 77 operating system with an eye to adapting it to commercial and administrative purposes as well as its better-known functions.

I/O Fortran 77 complies with Ansi standards, incorporating the Algol-like enhancements which attempted to make Fortran more flexible. It was recently chosen by the US Navy for its strength in the areas of communications, security and adaptability.

The system was developed by Ibar Shy, a keen observer of Fortran's evolution, who has gone ahead with development of an advanced compiler and system which takes every advantage of the most recent Fortran standards as well as incorporating his own designs.

Shy has put a lot of effort into improving the file handling and I/O facilities in the belief that improved file-handling will give Fortran a future in the commercial market.

Several packages dealing with more familiar applications of Fortran such as financial planning are already available on the Tri-Novum.

The idea behind extending the facilities of the language to compete in other fields of data management is that companies investing in the system for a specific purpose will later find it easy to expand the software with the hardware.

Shy is eager to prove what it can do in business applications.

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Shy is eager to prove what it can do in business applications.

Logica plans a Cobol interface for Rapport

LOGICA plans to introduce a Cobol Interface this year that should greatly extend the line-up of potential customers for its compact and portable relational database system Rapport (Software File, October 11, 1979). At the moment Rapport is offered mainly to scientific and technical users who do not want to get enmeshed with a Coddasy type system.

It was developed by Logica in conjunction with the Royal Armament Research and Development Centre and is written in Fortran. A version written in the Coral real time language is under development.

The basic Rapport system costs £8,000 and occupies 10K-words on a 16-bit mini while the full Rapport system costs £12,000 and requires 25K-words. Its options include an interactive query language, back-up and recovery and a locking facility that prevents more than one user accessing the same file simultaneously.

Members are being invited to look in depth at specific parts of the package and suggest modifications to suit their needs.

Apart from secretary David Kay there are no members of Safe Computing on the committee.

SafeS users establish a 'friendly pressure group'

THE newly-founded users association formed as a "friendly pressure group" on Safe Computing and ICL has established a formal constitution. Membership of the association is restricted to users of the Small Factory Systems package (SafeS) for production control, using the ICL System 10 range.

Gino-F now on Nord minis

ANOTHER machine has been added to the wide range on which the Computer Aided Design Centre's product Gino is already available. The graphics package Gino-F is now available on the Norwegian Nord minicomputer made by Norsk Data.

The centre aims to make general purpose graphics facilities available on mini and microcomputers. Gino-2D, the two dimensional derivative of Gino-F, was recently launched on a Motorola 6800, the first time it has been available on a micro, and its price has been cut by 30%.

Watching the subs

A SUBSCRIPTION/circulation package for small to medium-sized publishing houses has been developed by Computerplan of Hounslow, Middlesex. Based on Data General minis, the system handles all the specialised functions to do with the administration of publications and costs £16,000 as a turnkey system, or £3,750 for the software alone.

Database query language

A DATABASE access system and query language, info, designed for use by non-computer personnel, is being marketed in the UK by Doris developed by US software house Henco of Boston, Mass. The system is available for use with Prime-based installations, but can be adapted for loading on most minis. In the US Honeywell offers it as Doris in selling the Fortran-based system for £8,000 including training and support for the first year.

Datamanager updated

RELEASE 2.1.2 of the data dictionary system Datamanager has been issued by MSP. It is designed to increase flexibility and DBMS support as well as allowing for secondary indexing, and is aimed at users of IMS, Adabas and Total. MSP has also made available a Com-plate interface for Datamanager in response to requests from users.

Data entry system

AS well as the Data Entry RPG on the new IBM 5280 data entry terminal system (CV, January 17), there is an Ansi 74 Level 1 Cobol subset which enables users to design display layouts and forms at the terminal to match those on the mainframe programs. The Cobol runs on the 5280, but has to be compiled on a 370, 303X or 4300 host.

CADC wins a Japanese foothold

WHILE interest in the Oriental market increases, the Computer Aided Design Centre at Cambridge has already established a foothold in Japanese industry.

The centre has concluded an agreement with the Institute of Japanese Scientists and Engineers for the development of the program DPS, ICI is to help with the project, which is to do with simulation of unsteady state behaviour of chemical process plants, such as during start-up, shut-down and changed operating conditions.

The Institute, which originally developed DPS, is to enhance the calculation facilities of the program, while the centre will be helping with its expertise on user-oriented output and input facilities.

Negotiations have been spread over the last three years, and the first stage of the project is planned for completion in November 1980.

Computer Associates prepares to enter China market

COMPUTER Associates is getting ready to market its line of IBM systems software products in China in anticipation of what it feels is bound to be a developing market in that part of the world.

In the short term the company does not expect great revenues from the appointment of EDPS Systems in Hong Kong as its distributors. At present CA estimates less than five or so IBM mainframes in China, but the move is geared towards future income from China.

Sam Goodner, president of Computer Associates International, said of the venture: "The computer market is just getting heated up in China and we feel that IBM will be getting its usual share as it has elsewhere around the world. We want to be ready when that day comes."

He added: "There are about 50 mainframes in Hong Kong alone, which is a sufficiently large market for our broad line of DOS and OS system software." The Bank of China has also recently installed two IBM 3032 mainframes, which Goodner sees as a significant hint of future trends.

Audit system

A COMPUTER auditing system from Pansophic, complete with training and telephone support, is now available for IBM users in the UK. Panaudit incorporates over 50 programs, and creates complex reports, and allows audit campaigns to be organised in the best logical order. It has already been successful in the US auditing community.

Hoskyns Modular Application Systems (MAS), are a total systems approach to the information and control requirements of organisations. During the past ten years MAS elements have been built for most applications in industry, finance and commerce. Over 1500 MAS elements have been installed worldwide. The table below gives an overview of some of the major sectors covered by MAS and other Hoskyns standard systems.



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Industry or Commercial Sector	Computer			Hoskyns Modular Application Systems					
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Banking	✓	✓	✓	✓					✓
Distribution	✓	✓	✓	✓		✓	✓		
Foundries	✓								✓
Hotels			✓						✓
Housing Associations	✓								✓
Insurance			✓	✓		✓			✓
Leasing and Hire Purchase			✓			✓			✓
Manufacturing	✓	✓	✓	✓	✓	✓			
Retailing	✓	✓	✓	✓					
Shipping	✓	✓		✓		✓	✓		
Vehicle Contract Hire and Fleet Control	✓			✓					✓

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Puzzler

$$\begin{aligned} A + B &= X \\ A + C &= Y \\ B + C &= Z \\ A + B + C &= 401 \end{aligned}$$

THE task here is to identify the three numbers A, B and C. (The 401 total is the smallest possible for this set of interlocking equations, where all six letters represent different integers.)
See page 53 for solution.

OP SPOT

Educate your colleagues on the operator's role

IN my early days as Op Spot columnist I put a straightforward but loaded question to some prominent members of the operations fraternity: "Why are operators treated as the poor relations of the computer industry and what can we do to rectify the situation?"

The answers I got were both interesting and stimulating, but no-one was able to come up with a workable solution to the problem.

Discussion centred around whether operations should be treated as a trade or profession. One person said that operators had been treated badly from the early days, while another blamed many of the ills of the industry on bad management.

Two years later I find that question cropping up time and time again in my conversation with operations people ranging from trainees to managers.

Early on I would point to the

lack of training and career progression opportunities, and the fact that operators get paid less than programming and systems staff. But such an answer is little more than a cop-out — they are not the real ills of operations, just the symptoms.

The fact is that the rest of the industry really does need to be educated about the role operations staff play. It is important that they have at least some idea of what operators get up to after they have gone through the security doors and into the air-conditioned environment of the computer room.

I am not just talking about the powers that be, the DP managers, although if they realised the true value of the operators the situation would improve vastly.

I'm including the DP staff who work outside operations. As an example let me relate the essence of a conversation which

took place between the DP manager's secretary and a data controller at an installation where I once worked as an operator. The guy from data control complained that he was a bit bored and would like to learn something about operating during his spare time.

The conversation went something like this: "Shouldn't be too difficult. I'll have a word with the operations manager," he said.

"Oh yes," replied the other, "shouldn't be too difficult. And it's always handy to have two strings to your bow."

My shift leader and I overheard this conversation and both of us smiled, as we had heard it all before. (Well, he had heard it all before as he had been in the industry a lot longer than I.)

Anyway, after trying his luck in the computer room, the data controller came to the unexpected conclusion that operating the system was much more involved than he had anticipated. He returned to data control and is still there, as far as I know.

And so, for those considering operating as the second string of your DP bow (I realise that this only happens at the very small installation) let me give you some idea of what life in the computer room is like.

Let's be absolutely clear about

this — certain members of the operations fraternity are so skilled and experienced that their role is more aptly described by the term "technician" rather than "operator."

The fact that operators are often dubbed "button pushers" would be a joke if it were not such an insult.

The typical operator's skills range from operating bursting and decollating equipment right through to solving complicated job control language problems, and sorting out system loops and wait states.

In between those two extremes come operating peripherals such as printers and card readers, and running the main console under normal circumstances.

Such tasks as operating card readers and printers may appear easy. And so they are — until things start to go awry.

Card readers often get jammed and have to be opened up and cleared. A former colleague (he didn't get very far because he liked to have a bit of a laugh at work) was an absolute genius at sorting out card reader and other problems with peripherals.

Many a time I would spend what seemed like ages on a card reader jam, only for him to come over and sort it all out in a few seconds. A more enlightened installation would have sent him on the appropriate courses and made him the hardware specialist of the operations department.

Running the main console is particularly satisfying as you are in control of the entire computer room. If the main console operator is on form he can do much to improve system throughput.

He does this by using the operator commands to re-set job priorities and keeping the other operators on their toes by telling them where and when stationery is to be loaded, and discs and tapes mounted.

But it is when system loops and wait states occur that the top operators come to the fore. If you want to find out who are the best operators at your site, watch for the ones who don't step away from the console when things start to go badly wrong.

The operator who is able to sort out loops and wait states is worth his weight in gold. He can prevent much down time and so help provide the best possible service to the user.

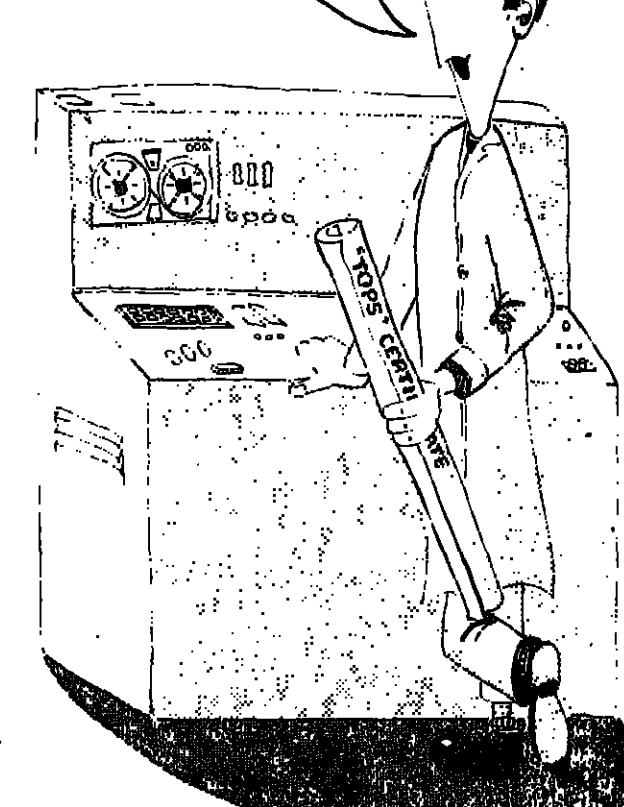
And don't forget what happens when things start to go wrong in the middle of the night shift. The official procedure may well be to contact the job controller or programmer, but many an operator will sit down and sort out the problem himself. That saves a lot of time and trouble.

This column is intended primarily for operations and staff. But this week, why not show it to the other staff at your installation and give them at least some idea of the part you play at the installation.

Effect of VDUs on the eye

THE Association of Optical Practitioners has come up with two more booklets on visual display units and their effect on the eye.

The first, 'VDUs and You', is written in a simple and straightforward manner. It gives advice on such matters as the siting of the equipment, lighting, and the use of spectacles and contact lenses. It is available in packs of



Cartoon submitted by operator Dave Townsend, a former IGC operations student.

Contract negotiating — how to stack the odds in your favour

THE operations manager usually finds the odds stacked heavily against him when he is involved in negotiations with the supplier of a service of new equipment.

The reason is two-fold: most sites buy new equipment no more than once every five years or so. By contrast, the typical supplier makes many sales every year and therefore has vast experience of the procedure involved in negotiating sales and service contracts.

So it is not uncommon for the manager to sign a contract only to realise at a later date that the conditions don't fully cater for his needs or, more importantly, those of the user.

Advice for managers on how to redress the balance is given in one of the latest additions to Data Centre Operations Management by Auerbach.

Entitled 'Negotiating with Vendors', it tells the manager to draw on the experience of other staff in his company rather than try to handle negotiations himself. In other words, he should form a contract negotiating team.

The company's legal and financial departments should be represented on the negotiating team. The legal department member can provide guidance on contract terminology and the

legal ramifications of penalties and guarantees.

"Representation from the financial department is important when deciding whether to purchase or lease, determine break-even points, and pricing present value analysis. Needless to say, one or more of the major users should be included in the negotiating team."

The first step, then, is to form a negotiating team. It should be made up of persons who have some experience of data processing and are interested enough to get involved in the negotiating process.

Current service contracts should be reviewed as a repeating old mistake is that a vendor is selected on the basis of a "negotiating strategy" which is not defined.

The portfolio goes into the negotiating strategy at length. The following factors are included:

Pre-negotiation planning: before each session, the team should over what it wants to achieve during the meeting.

Plays and tactics: There should be a great deal of thought as to the team's strategy. For example, the team should threaten to call off the dog if the supplier is particularly over certain points.

Type of acquisition: There are several ways of acquiring computer equipment: purchase, lease, hire purchase, or lease. Here the financial department is invaluable.

Negotiations should be tied out in a business plan, and the manager should try to stay in control all times.

Data Centre Operations Management, by Auerbach, is published by Computer Age for Management, Great Portland Street, London, including a monthly newsletter.

by Bernard Allen

New technology 'creates jobs'

JOBS as well as wealth are created faster as a country embraces new technology, according to studies just completed by Mackintosh Consultants for the German government.

The firm's chairman, Ian Mackintosh, says new technology in Germany has reduced employment in production industries but has more than offset this by stimulating growth of employment of white collar workers.

Mackintosh compares Germany with the UK by showing

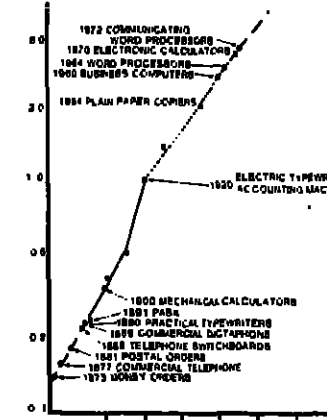
that since 1965 in manufacturing UK productivity has risen by 40% while employment has fallen 20%. In Germany for the same period productivity has improved 70% but employment has fallen only 10%.

The connection between productivity improvements in offices and the stimulation of growth is demonstrated by Mackintosh in the chart (right). Each invention in office machinery, Mackintosh claims, far from reducing white collar staff, has increased them through "the considerably en-

hanced business volume which was stimulated by improved documentation."

Mackintosh sounds a warning, however, that endemic structural unemployment is becoming increasingly difficult to avoid, and that nations must address the technical and economic problems with "appropriate vigour." This the UK is not doing at present, he adds.

"A radical change in the employment implications of new technology is under way," he adds.



The connection between productivity improvements in offices and the stimulation of growth.

NCR steps up business in the manufacturing sector

NCR is stepping up its activities in the manufacturing sector with enhanced versions of its existing production control packages, IMCS and Mission.

Under development is a hardware/software terminal controller called Industrial Data Collection System, IDCS, which will enable either IMCS or Mission to interact in real time with factory data collection equipment built by Data Patching. This is the California firm bought by NCR about two years ago and which has now been integrated with NCR's marketing organization.

A new family of shop floor terminals from Data Patching has just been announced by NCR and the first member is the 2820 which can come with a variety of data entry devices such as a punched card reader, a magnetic card reader and a bar code reading wand as well as an

alphabetic keyboard. The 2820 has a single line alphanumeric display while another 2800 series model yet to be announced will have a VDU. The 2800 series will also include a portable data collection unit.

The IDCS terminal controller, which should be ready by the end of this year, will enable NCR to offer Data Patching terminals as part of a complete and comprehensive interactive production control hardware/software package based on an NCR host computer running IMCS or Mission.

IMCS, the Interactive Manufacturing and Control System, is offered to manufacturers with a turnover of up to about £10 million, and can run on an NCR 8200 or 8400 computer. An 8200 based system costs between £27,000 and £45,000 depending on the number of terminals and the

amount of disc storage, while prices for 8400 configurations are in the £60,000 to £70,000 area.

Bigger manufacturers prepared to spend at least £130,000 on a production control system can have a configuration running Mission, which stands for Management Information System Support. Online from NCR, Mission can run on any NCR mainframe from the 8455 upwards.

IMCS already handles jobs like inventory management, work in progress, materials

requirements planning and order processing and has now been enhanced with modules for sales analysis and purchasing and receiving.

Mission, which incorporates the Total database management system, already handles tasks like routing, costing, materials and inventory management, and has now been enhanced with order processing and work in process modules. Mission was originally developed by NCR for its own internal production control.

Harris Corp plans to operate US satellite network

HARRIS Corp in the US plans to operate a satellite network for internal voice, data and facsimile transmission between its headquarters in Melbourne, Florida, and two major manufacturing plants in Dallas,

Texas, and Westerley, Rhode Island, as soon as it is granted permission from the Federal Communications Commission.

It will install ground station equipment of its own make, based on 36-foot dish antennae

Geest sells software packages for Texas Instruments minis in US

STARTING with a licence agreement in Toronto, Geest Minicomputer Systems has embarked on a programme of selling application packages for Texas Instruments minicomputers in North America. Geest is far bigger than almost any TI systems house in the US or Canada, having installed 50 machines worth £2 million to date in the UK and several Continental countries.

Geest's application packages cover areas like production control, word processing and Cobol program development as well as general accounting, and Geest believes that few modifications are required to most packages to make them suitable for North American users.

Geest's first deal in North America is with Buckley and Kelling of Toronto, a software house which is diversifying into the systems business following its agreement with Geest.

Geest Minicomputer Systems is part of Geest Computer Services which has announced a turnover of £3.8 million and a pre-tax profit of more than £500,000 for 1979. The service bureau side of the company has just been enhanced by the acquisition of Charington Computer Services of Bishops Cleeve, Shropshire, which runs a

1902T and will add about £350,000 to Geest's turnover. Geest already runs bureau operations based at Birmingham, Northampton, Peterborough and Cambridge equipped with small mainframes from Honeywell, Univac, IBM and ICL.

Geest Computer Services is part of the £200 million Geest Organisation.

BBC series on database systems

THE BBC's Open University department is to begin next month an eight-part television series on database systems.

A "field trip" approach to the problem of explaining some of the more difficult database concepts has been used by the producers who visited companies and organisations in the UK and the US.

Supporting material will be provided through the OU Student Computing Service, written case studies and the reading of Principles of Database Management by James Martin.

The first part will be broadcast on February 10.

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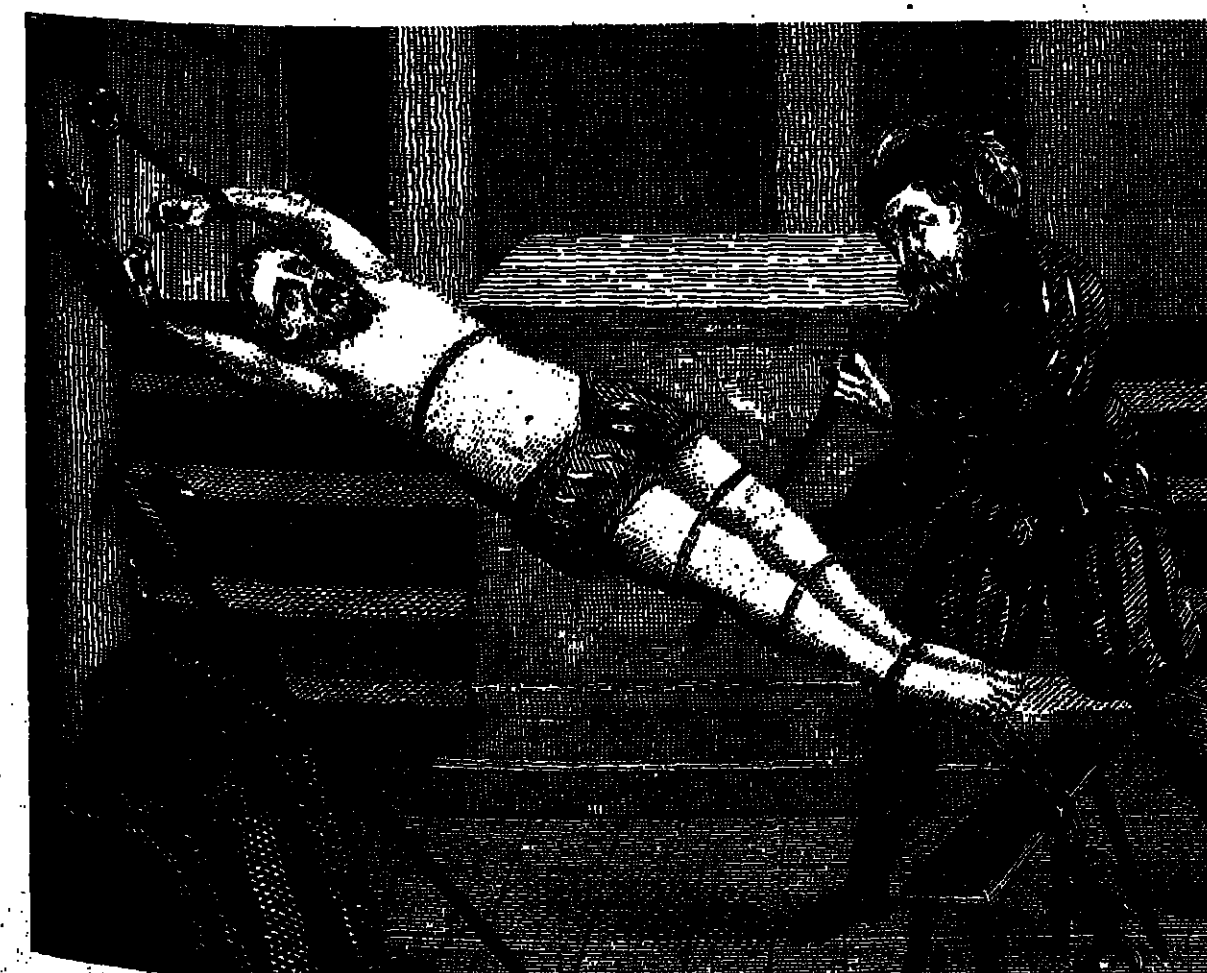
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PEOPLE and EVENTS



A specially-made silver magnetic tape was presented to Compower, the nationwide bureau service, by Control Data, which recently manufactured its three millionth magnetic tape. Sandy Peters, sales manager of Control Data, said, "We chose Compower because they are very good customers. Last year they

bought more than 13,000 tapes." The ceremony took place at Compower headquarters at Cannock, Staffordshire. In our picture (left to right) are Malcolm Karmen, technical manager of Control Data, Alan Gill, UK director of Control Data, George Barnman, managing director of Compower and Sandy Peters.

Microsystems at GMS

GMS is to launch a new microsystems division in the spring. Martin Kempton has been appointed manager of the department which is to offer microcomputing packages to first-time users in the North of England. He has previously worked for British Titan Products, the British Steel Corporation and Davy Computing Services.

Christopher Ball has become training consultant for GMS Microsystems. He joins the company from the NCC. Nicholas Fareham, a former teacher who has been with GMS for 14 months, is sales executive responsible for selling the range of financial and administrative packages which the company offers as a bureau service.

Graham Burke has been appointed director and general manager of Plessey Communication Systems. For the past 12 years he has been with IIT Business Systems Group and was formerly general systems manager for the whole IIT Business Systems group in the UK.

Managing director of Eurocom Data

EUROCOM DATA, the UK subsidiary of Eurocom Data (Holdings) has announced the appointment of Ken Jamieson as the company's managing director.

Eurocom Data (Holdings) is the European COM service company owned by National Westminster Bank. Jamieson has been with the company since its inception in 1974 and has been a director and senior manager UK since 1977. He has also held positions with ICL and Rowntree Mackintosh.

Philip Dobson and Jim Pearcey have been promoted in the business systems marketing division of Univac. Dobson has become national sales supervisor for manufacturing systems and special projects. He was formerly a sales executive. Pearcey becomes sales supervisor of system house sales. He joined the company in 1978 from Honeywell.

William Orthwein is the new chairman of McDonnell Douglas Automation. Joseph Quackenbush, previously executive vice-president, becomes president.

Grahame Vowles has joined Computer Machinery Company as territory manager for Birmingham and becomes responsible for sales of CMC products in the area. He joins the company from Kode, where he sold transaction processing and data prep equipment.

Michael Beer, Peter Newton and Derek Roach have been appointed associate directors with Marcol Computer Services. Jim Trussion has taken over as divisional manager after spending some years as a senior project manager in Marcol's IBM division.

Chris Young and Ken Cockerill have become sales executives with Elbit Data Systems. Young, formerly with Prime Computer, will be responsible for the Midlands. Cockerill, who is to take charge of the North West, previously worked for Redifon.

Planning for the 80s

CHANGES in the working lives of the population and the effects of the technological revolution will also mean changes to in the working methods of local government. These topics are to be discussed at the national computing seminar organised by Lamsac and to be held from June 30 to July 3. The event is aimed at those involved in short and long-term planning of council activities. Details can be had from the Director, Lamsac, 3 Buckingham Gate, London SW1.

NCR Golf Championship

THE National Long Driving Golf Championship is to be sponsored for the second year by NCR. The competition, open to both amateur and professional golfers, is in aid of the Golf Foundation.

This year the winner of the contest will receive £1,500 and the runner-up £500. Other finalists will receive £250.

Four regional heats will be held throughout the UK between July and September and the final is to take place at Stoke Poges Golf Club on September 26.



David Bonny has become national accounts manager of Geest Microsystems. After six years with IBM he joined Raytheon-Cosmos Data Systems as insurance industry salesman and later became Post Office account manager. In his new position with Geest he will be responsible for the national accounts division.

John Kitchen has become a consultant with BIS Applied Systems, where he will specialise in the executive section. He was previously a management consultant with Annan Impey Morish.

John Wood has become area credit manager for Western Europe with Ampex. He has recently been responsible for a number of companies related to the computer industry.

Frank Gibbs has become sales executive for Oxfordshire with Computer Automation. He was formerly general manager with Digico and a sales executive for OEM products.

Northern Software contract firm

A FULL contract service organisation has been launched by Northern Software Consultants, the UK manufacturers of application software. The new company, NSC (Programming) will be headed by general manager Eddie Blake and customers are expected to range from small mainframe systems upwards to expansion of Northern Software Consultants, NSC (Programming) aims to provide a specific requirements for feasibility studies through systems operation.

Clark Daugherty has become a member of the board of Documentation. He is currently chairman and chief executive officer of P. R. Mallory & Co., executive vice-president of DSI Industries.

Matthias Wells has become sales manager of GMS Europe, a new post office, a wholly owned subsidiary of Honeywell. Wells, formerly with Fairchild (Marketing) product marketing manager, sales manager for the company's integrated circuit products.

DIARY

FEBRUARY 4
Automation of small batch manufacture. IMechE applied mechanics group. Institute of Mechanical Engineers, 1 Bridge Walk, London SW1. Tel: 01-222 7880 ext 204.

The trade union perspective of computing. BCS East Anglia branch. Norwich Union Offices, Norwich. 10.00.

Meeting. BCS Fortran specialist group. Heriot-Watt University, Edinburgh. 10.45. Tel: 0533 554455 ext 165.

The use of microcomputers in electricity distribution. BCS East Anglia branch. Russell Road, Ipswich. 10.00.

Visit to Open University. BCS Bedfordshire branch, Milton Keynes. Apply via secretary. Tel: 01-637 0471.

FEBRUARY 5
A look at the new Ansl Cobol standards. BCS North West London branch. Railway Hotel, 390 Oldfield Lane, Greenford, Middlesex. 10.30.

FEBRUARY 6-7
IBM CUS telecommunications group. Palace Court, Bournemouth. Tel: 01-551 1643.

FEBRUARY 7
Visit to Lloyds. BCS Kent branch. Chatham. 10.30.

The future of BCS and presidential visit. BCS Chester and North Wales branch. Holf-Way House, Connah's Quay, Clwyd. 10.30.

FEBRUARY 12
Map-making by computer. BCS Croydon branch, Fairfield Halls, Croydon. 10.15.

Voice response systems. BCS Harlow sub-branch. Sixton Inn, Harlow. 10.30.

Use of computers in MR weather forecasting. BCS Newcastle branch. Barras Bridge Refectory, University of Newcastle, Newcastle. 10.00.

FEBRUARY 12-13
IBM CUA small systems group. Holiday Inn, Leicester. Tel: 01-551 1643.

FEBRUARY 13
Technical directions. BCS Bristol branch. St Vincent Rocks Hotel, Clifton, Bristol. 10.15.

Computers in newspapers. BCS North London branch. West Lodge Park Hotel, Cockfosters. 10.45.

CAD at Ford. BCS Sussex branch. County Hall, Lewes. 10.30.

Computers in the 80s. BCS Humberside branch. Hull College of Higher Education, Hull. 10.30.

FEBRUARY 14
The IBM System 38. BCS advanced programming group. Prudential Assurance, Holborn Bars, London.

What are networks? IDPM Essex branch. County Hotel, Chelmsford. 20.00.

IBM CUA Scottish group. Dunblane Hydro, Dunblane. Tel: 01-551 1643.

Have computers any place in the doctor's surgery? BCS Oxford sub-branch. Staff Coffee Lounge, Oxford Polytechnic, Oxford. 10.45.

FEBRUARY 18
Controlling EDP in the 80s. BCS auditing by computer group. Peat, Marwick, 1 Puddle Dock, London. 10.30.

Alternatives to microprocessors. Microprocessor applications group of the IEE. IEE, Savoy Place, London. 14.00.

FEBRUARY 21-22
IBM CUA operations group. Shakespeare Hotel, Stratford-on-Avon. Tel: 01-551 1643.

FEBRUARY 27
Microprocessors for developing countries. D. Waller. Followed by wine and cheese. BCS specialist group for developing countries. British Council, British Council Students Centre, Portland Place, London. 18.15.

Cargo DP system to succeed LACES takes shape

LINKS between the international airline network, Sita, and the Post Office Packet Switched Service will form part of the system that is scheduled to take over from the London Airport Cargo EDP Scheme, LACES, in October of next year.

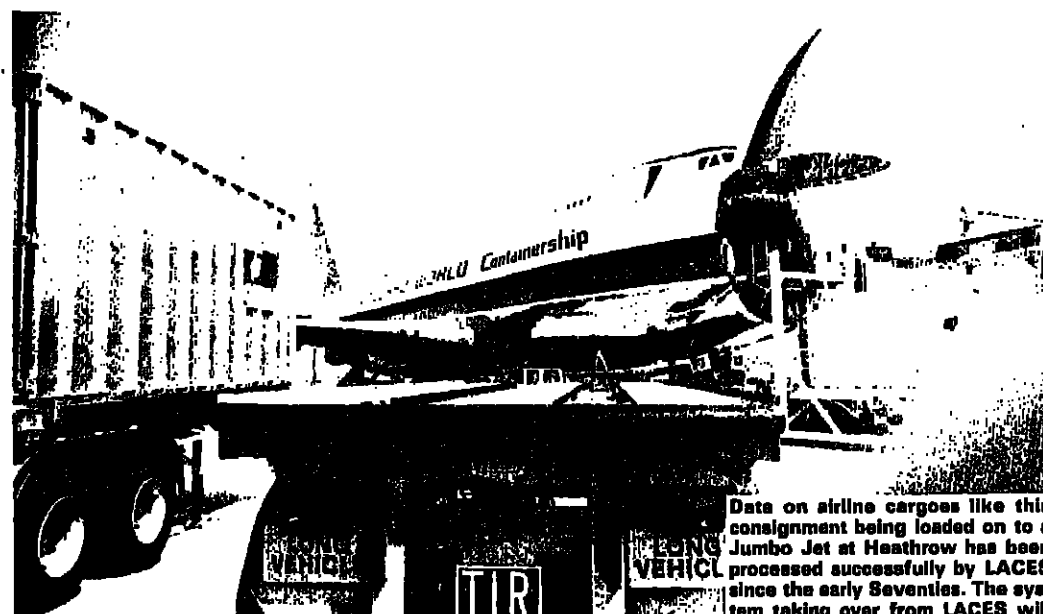
The culmination of the project called Airline Cargo Processing in the Eighties — ACP80 for short — the new system will centre on the Harmondsworth installation of the Post Office's National Data Processing Service, the same site that operates LACES.

LACES runs on ICL System 4 machines at Harmondsworth and a lot of the existing LACES software will run under emulation as part of the ACP80 operation. It will probably run on ICL 390s under DMS System 4, but no final decision has yet been made on the mainframe hardware to be used. Other manufacturers, notably IBM, could be in with a chance.

The ACP80 system will differ from LACES in several important ways. One big difference is that the major airlines — British Airways, Pan Am, TWA, KLM and Alitalia — will run cargo inventory processing on their own machines instead of on the Harmondsworth system. Called Airline Systems Inhouse, the airlines' inventory operations will interface with the Harmondsworth system via Sita and the PO's Packet Switched Service.

PSS will also be used to transmit cargo data between the computer systems of all airline users and terminals at the 200 freight agents that are moving over from LACES to ACP80 with the airlines.

To interface with PSS the data communications protocols used by the airlines, like Univac Uniscope 100, will have to be converted to the X25 packet switching protocol employed on PSS. The airlines will use a version of the Communicator protocol converter from Casu Electronics of Northwood Hills, Middlesex.



All the freight agents and the remainder of the airlines using the ACP80 system will continue to have cargo inventory processed at Harmondsworth, the ACP80 system acting effectively as a bureau for them. But the key feature of LACES, the real time clearance of imports for the Customs, will be handled by a

functionally separate system from ACP80 instead of being integrated with inventory control as it is with LACES.

The new Customs clearance system will be called Departmental Entry Clearance System, DEPS. One vital feature of DEPS is that it will handle real time clearance of imports for Customs at big seaports as well as at Heathrow airport.

The Ferranti Argus minis ordered for the seaports about two years ago (CW, September 1, 1977) will act as terminal controllers and will also validate cargo data before it is transmitted to DEPS at Harmondsworth for clearance. Imported cargo data from Heathrow will be passed on to DEPS after being processed by ACP80. The two systems will probably run on the same hardware.

DEPS was originally to be operated at a new Customs computer centre at Sheshbury.

Computing is a great game for Terry, 15

FIFTEEN-year-old Terry Brown and a few laughs when he described his 18 months' experience of computing to the Balmic microcomputer club in South East London.

He began by recounting his decision to take up computing as an optional subject at Crown Woods Comprehensive School in Eitham, which he was advised against by both his teacher and his brother — because his brother had already tried it and had dropped out through boredom.

Three months later Terry faced his first hurdle: persuading his father to buy him a Nascom 1. He then went on to team up with classmate Carl Lloyd-Parker, who had even more completely mastered the available machines, and together they financed the expansion of their Nascom and finally their replacement with Nascom 2s by writing games programs to be sold on cassette at the 1978 Microcomputer Show (CW, July 12, 1978) and through Compshop in Barnet, Herts.

The next club meeting will be at Thames Polytechnic School of Architecture, Woolwich, on February 13 at 7 pm, when Dr Tom Crowe of the Polytechnic will try to cover "Everything You Always Wanted To Know About Micros, But Were Afraid To Ask."

Club chairman John Williamson is working on the provision of residential weekend meetings in Dartford, Kent, so that people can come from further afield to take part in special interest group activities.

ADAPSO calls for action against AT&T

THE Association of Data Processing Service Organisations has petitioned the US Department of Justice to take action against AT&T's sale of software products, in particular the Unix operating system which is widely used on Digital Equipment PDP-11s. Eighteen months ago the Justice Department authorised an investigation after a similar charge by the Computer and Communications Industries Association concerning AT&T's alleged violation of the 1958 Consent Decree (CW, August 3, 1978). The

CCIA contended that the software products marketed through Western Electric, AT&T's supply arm, went far beyond the manufacture of "products used directly in the common carrier network."

Unix was released to companies in the competitive private sector in 1973 after its development at Bell Laboratories, and is estimated to have over 800 users outside Bell Systems. An LSI-11 version of Unix is being developed by a New York software house, Whitesmiths.



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MICRO NEWS

Wide range of services from Jermyn

A NEW microcomputer applications consultancy has been launched as a division of the Jermyn electronic components distribution group. Called Jermyn Microtec, it aims to offer an all-embracing consultancy and design service, primarily to industrial markets.

The division is being headed by Chris Nabavi, who has joined it from the Electrical Research Association. He is seen here (centre) surrounded by the rest of the Microtec team. Based at Bourne End, in Bucks, the consultancy will provide publications, awareness courses tailored to specific client requirements, feasibility studies, applications consultancy, hard-



The Jermyn Microtec team

ware and software design services and project management.

The Jermyn Group has come into the micro consultancy business fairly late, a fact acknowledged by the company's director of business development, Pat Otter. But he feels that the new division has something specific to offer.

"There are reckoned to be some 650 Mapcon authorised consultants," he said, "but it is

an interesting exercise to eliminate from these all those operations that cannot provide a complete service. By this I mean those that specialise in particular applications areas, those that provide only partial services, such as consultancy but no design service, and those that specialise in just one aspect of the subject, such as software.

With these eliminated, we estimate that there are perhaps only 10 consultants capable of offering a complete service to the client."

At this early stage, Jermyn Microtec has a specialisation towards instrumentation applications, but according to Chris Nabavi, the planned increase in staff will also allow the company to move into the process control field as well. "We do not, however, plan to specialise in any one industrial sector," he said.

'Trend away from custom built ICs'

FOLLOWING a different track towards the future of the semiconductor industry during the 1980s than some of the leading lights of that industry, the US consultancy Frost and Sullivan has predicted that the commercialisation of VLSI processing technologies will lead to much greater standardisation in circuit design, and therefore will obsolete custom approaches to high density circuits.

The means of differentiating between the requirements of different end user applications will be through software routines, the company's latest projections indicate.

This tends to contradict the views expressed last year by Gordon Moore of Intel, when he suggested at the International Solid State Circuits Conference in Philadelphia that the advent of VLSI processing would greatly reduce the potential applications areas for the merchant semiconductor suppliers because the device complexity possible would make definition of future mass market circuits almost impossible.

By the same token, he felt, this would mean that custom designed circuits produced by systems companies vertically integrating into the components market with custom designed parts would become a significant factor in the marketplace (CW, February 22, 1979).

A report by Frost and Sullivan, called The Solid State Memory Market in the US, centres its predictions on the potential movements and developments that are likely over the next few years in that area. The report raised the point about decision that there would be a significant growth in high density PROMs and EPROMs concurrently with this trend, as the means of providing the needed software routines.

It sees world-wide shipments of memory devices by US semiconductor companies rising to \$3,700 million by 1985, from a 1979 level of \$1,400 million. It is that time-frame the price per bit of memory will drop from 400 cents in 1979, to 0.006 cents.

In the RAM market, where the report predicts a 68% annual growth rate to 1985, Frost and Sullivan sees the complete demise of the 1K device, the waning of 4Ks, a peaking of the 16K market, as well as the 64K memory. By the end of the period, a growth cycle will have started for 256K-bit RAMs.

While it predicts little activity in the CCD memory area, it sees a different picture for bubble devices. It foresees a 4-megabit memory within three years, and predicts a 50% annual growth rate in the market for them.

A second town

MICROCOMPUTER action house Micro Focus is setting up a research and development operation in Sweden. Occupation of offices in the John Murray Tower in the town will start next month, with a team of 25 people.

Retailers appoint a permanent secretariat

THE birth-pangs of the Computer Retailers' Association should soon be passing, now that it has decided to appoint a permanent secretariat.

At an extraordinary meeting of the association last week, chaired by Tim Keen of Keen Computers, the vote eventually went to Helen Gibbons, who runs a small company specialising in providing secretarial services to small trade associations and professional institutions, such as the Association of Franchised Distributors of Electronic Components.

Several suggestions had been put forward as methods for establishing a permanent secretariat for the association, including some form of connection with the National Computing Centre. This was eventually voted down, primarily because of members' doubts about being too closely involved with a government body.

Now that the basis of an organisational structure has been arrived at, the CRA should be free to tackle some of its other problems. Among these is the question of membership, which currently stands at about 30 companies. The association would like to see this rise to over 100 fairly quickly.

There should be considerable scope for this, for it is estimated that over 200 companies in the UK meet the CRA's conditions. It should also be able to tackle the defining of standards of operation, service and support that member companies should offer, with methods of policing them.

Horizon will cost more

PRICE of the Horizon microcomputer system is to rise next month by about 10%, its US manufacturer, North Star, has announced.

The increase, which is intended to accommodate inflation, according to the company's marketing director Bernard Silverman, will cover both retail outlets and OEM purchasers.

Examples of prices include \$2,995 for a Horizon 1-32K, up off, while the 100-up price will be \$1,890.

In this country, Horizon distributor Comart said last week that the new prices would be applied at some stage, probably when the newly-priced stock starts arriving. This could be by the middle of March.

Systems house formal launch

BACKED by film processing company Gratiapool, micro systems house Micro Scope was formally launched last week, with its first product, the Microscope reservation system. The company aims to produce commercial and industrial systems built around available hardware. Microscope is designed around a Cromemco term equipped with 128K of RAM and one megabyte floppy disc storage.

by Martin Banks

COMPANY NEWS

Bit-slice mainframe hopes for Sperry

OUT of step with its US mainframe competitors who all work to a calendar year, Sperry Corp's financial year ends in March. The company is therefore reporting on its third quarter in which it achieved net profits up 19.8% at \$68.4 million on turnover up 14.8% at \$1,039 million. Future business is booming with backlogs up 19% on the figure a year earlier at \$3,600 million.

COMMENT

WAR and rumours of wars have transformed the economic outlook since Christmas, and computer companies will benefit from increased defence spending.

The US mainframe manufacturers do substantial military business and, with all the majors apart from IBM and its compatible competitors reporting very good 1979 figures, the prospects for a blanket recession this year are rapidly receding.

UK companies like Hawker Siddeley, GEC, Racal and Plessey will be looking for increased business at home and abroad, and Deca's strong defence interests back up City consensus that Racal is getting Deca very cheaply.

Ironically, unlike its US competitors ICL may be a net loser, since it does little defence business and is likely to forfeit any new business it might have won in the Soviet Union as a result of government sanctions over Afghanistan.

While military expenditure may postpone the growing recession indefinitely, it is bad news for the UK and US governments' fight against inflation, since it inevitably means significant increases in government expenditure at a time when both administrations are trying to beat inflation with sound monetarist policies.

The reasons for boosting defence expenditure are, anyway, hardly anything to cheer about but the aim is after all to make war last, not more, likely.

For a direct comparison with its competitors, the running figure for the 12 months was up 21% at \$259.2 million on turnover up 12.8% at \$4,588 million.

Despite setting ambitious plans for the new bit-slice 1100/60 mainframe, the Univac division reports that orders for the machine were well ahead of plan, and also continue strong for the top-end 1100/80.

For the quarter, Univac orders were up 9%, turnover rose 14% and the backlog rose 11% compared with the same period last year. The figures for Univac have not been broken out, but the company accounts for about half of Sperry's business.

Business data on Prestel

AVERAGES of company performances in 120 sectors of industry are now available on Prestel provided by Inter Company Comparisons, publishers of ICC Business Ratios, on the Baric database.

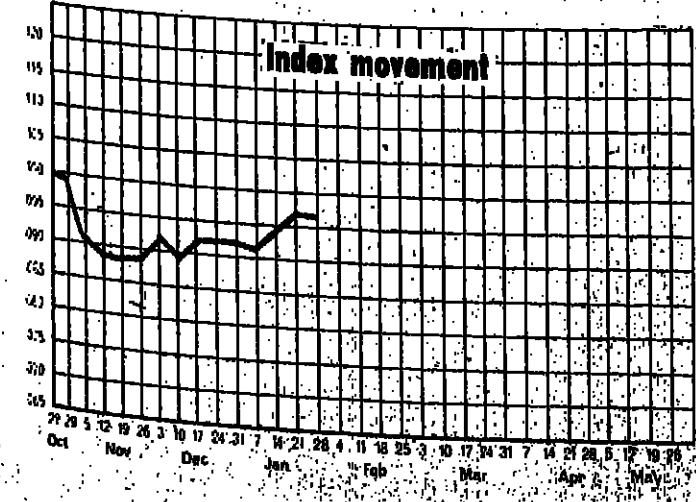
The averages for each sector, based on up to 100 companies' results, cost 15 pence a frame to access. Sectors include computer services and electronic equipment manufacturers and others. Performance indicators include profitability, export ratio and sales per employee.

Profits 31% up
RAYTHEON, the US parent of Data Logic in the UK, has reported net profit up 31% at \$187 million on turnover up 15% at \$3,728 million.

CW SHARES TABLE

1980		1979		1978		1977		1976	
High	Low	High	Low	High	Low	High	Low	High	Low
710	330	710	330	710	330	710	330	710	330
720	340	720	340	720	340	720	340	720	340
730	350	730	350	730	350	730	350	730	350
740	360	740	360	740	360	740	360	740	360
750	370	750	370	750	370	750	370	750	370
760	380	760	380	760	380	760	380	760	380
770	390	770	390	770	390	770	390	770	390
780	400	780	400	780	400	780	400	780	400
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880	500	880	500	880	500	880	500	880	500
890	510	890	510	890	510	890	510	890	510
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960	580	960	580	960	580	960	580	960	580
970	590	970	590	970	590	970	590	970	590
980	600	980	600	980	600	980	600	980	600
990	610	990	610	990	610	990	610	990	610
1000	620	1000	620	1000	620	1000	620	1000	620

The table shows the closing prices in London and New York at the end of last week. The shares listed are based on the prices of the UK companies in the table.



Past the £1m mark

SOFTWARE House Wotton, Jeffreys and Partners of Woking, Surrey has topped the £1 million turnover mark for its financial year which ended July, 1979. This represented a 50% increase on the figures for the previous period. The firm was founded in 1971.

Amdahl hit by trend of users to leasing

THE continuing desire of users to lease rather than buy their large computers is still squeezing Amdahl's profits. In the fourth quarter, the company managed net profits of only \$500,000 on turnover of \$82.3 million, compared with \$14.7 million on turnover of \$98.3 million in the same period last year.

For the full year, net profit was only just over one third of last year's figure at \$17.1 million, and turnover was down too, from \$320.9 million in 1978 to \$298.6 million in 1979.

Even so, the company continued to deliver more machines; the total was up 20% over the

year, but turnover and profits were both hit hard by the big demand for leases and by price cuts instituted by Amdahl to match those from IBM.

Leases only show up in turnover and profit figures as the payments come in, which is a major reason why turnover fell during the year.

The company is optimistic that price adjustments to make purchase more attractive than lease, coupled with signs that hardware prices are beginning to stabilise, will cause the outlook to improve in the current year.

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The Computer Professionals keep your assets fully employed



The National Enterprise Board's Nexos office systems subsidiary has not provoked as much political controversy as Inmos, but it is no less ambitious. Tim Palmer interviewed its managing director Muir Moffat, who tells why he believes Nexos is going to win, for the UK, a larger share of the integrated office systems market than the country has in

data processing. He says that the giants in this field, IBM, ITC and Xerox, have too many vested interests in obsolete technologies such as copiers, magnetic cards and dictaphones to be able to stay ahead in the race.

Moffat sees the main job of Nexos as systems integration rather than R&D.

Nexos wants a bigger market share for UK

By Tim Palmer

THE name Nexos is said to have been derived from the root of the Latin word nexus, meaning a bond or linked group, plus os for office systems.

Much of the most shadowy of the National Enterprise Board's high technology ventures, the office systems company is beginning to take shape and its ambitions are becoming clear.

Ambitious it is too no less than to challenge the entrenched might of the US giants like IBM and Xerox, and to win for the UK a much larger share of the world market for integrated office systems than it has managed to win in data processing.

Managing director Muir Moffat believes that it can be done, and that an embryonic company like Nexos is better placed to do it than are the giants with their vested interests in irrelevant office technology.

He also believes that an essential element of the large-scale integrated office system of the near future is what one might call speech processing, in addition to the accepted text, message and video processing.

Moffat demonstrates that only a proportion of the potential productivity gains offered by office automation can be achieved by automating the tasks of the secretary.

The gains can go much further if the productivity of managers can be improved.

"Voice — speech — and handwriting are what managers use most to communicate," he says. "Many meetings are held simply to get all the information together in one place, and if we can reduce the need for this, we can cut down travelling time as well as time spent in meetings."

"A system needs to be able to store and forward combined text and voice, so that managers can append voice messages to documents. It is estimated that 70% of attempted telephone interactions fail for one reason or another, although the failures are often hidden from managers because their secretaries try several times before getting the right person. The ability to store and forward speech in a system would help enormously."

Among the problems faced by companies like Xerox and IBM, Moffat believes, is their enormous vested interest in copiers, magnetic card typewriters, dictaphones, computer architectures which cannot accommodate speech.

"When you look at the specification for Xerox's proposed X-text network in the US, you find it is designed to offer wideband services appropriate to transmitting images — complete documents of the kind produced by copiers. But nearly all the information we need to transmit can be reduced to bits which do not need such wide channels for fast transmission.

All you need for digital voice is 64K-bps."

IBM seems perversely committed to small magnetic cards for transferring text and Wang, which in Moffat's view has got its integrated office act pretty much together, nevertheless seems to have overlooked the need for voice, while the whole point of integrated office systems is that they should do away with the mounds of paper generated by Xerox's copiers.

"In one large, well-known company the progress of a single document from senior management was traced. It passed down through eight levels of management over three weeks, and 250 copies were made of it. Or rather, 250 copies were traced — there may have been others."

He believes that to protect this enormous market, the big companies will try to inhibit the adoption of appropriate technology, all of which, Moffat believes, already exists.

Systems integration rather than development of technology is therefore the Nexos role. A first step has already been taken with the commissioning of an interface to enable output from the Logica VT-100 word processor, marketed exclusively by Nexos, to be produced on a Muirhead facsimile machine. Nexos is taking over the marketing of all Muirhead's products in this field.

Core and key element of the Nexos strategy is the enormously powerful and highly original Delta II system developed by the Exon company of San Francisco. Nexos has paid \$2 million for UK manufacturing and European marketing rights for the Delta for office automation applications.

A multiprocessor multi-bus fail-safe system, the Delta was initially developed as the basis of an automated telephone answering service. It therefore already includes what Moffat regards as vital facilities for marrying speech to text, for speech storage, retrieval and manipulation. Operations can also be controlled using a 200-word voice-command vocabulary, which Moffat believes could be extended by storing multiple 200-word command sets.

The aim of Nexos is to be able to offer all the elements of a complete integrated office system for a large company. The inclusion within the system of data processing as well is a possibility, but Nexos envisages providing all the necessary interfaces and protocols to enable the system to be linked to any manufacturer's mainframe so

that a company can tie it into its existing DP facilities.

Substantial software for the Delta has to be developed over the next 12 months and much of this could be subcontracted to software houses.

The company's product strategy is to have a pyramid of products with low-cost mass-market terminals at the base, and the Delta at the top.

Logica is working on a bigger, more advanced word processor

MOFFAT...With so much technology around there is no need to invent new ones



upwards compatible with the VTS 100, and Nexos will also be commissioning companies to develop and build for it low-cost workstations for use with the Delta. These will have to combine text, data, graphics, image and voice, and Moffat believes that a manager's terminal should cost not more than £1,000

The Delta itself will have a UK base price of about £200,000 and a mini-version for smaller companies is also a possibility. At the bottom end of the range, a basic electronic typewriter is also needed and the Ricoh daisy wheel printer for which Nexos has UK manufac-

turing rights could form the basis of this. UDS, bought by Nexos in October, makes the printer.

Moffat is very persuasive, but two important doubts overshadow the Nexos venture. Is an integrated voice facility really as vital as he believes, given that many people regard speech as too untidy and imprecise to be accorded the same importance as the written or displayed word?

If Nexos can convince potential customers of this, the other question is whether a new, small, unknown company can really make a success of such a high-value low-volume product as the Delta.

For a market which did not exist three years ago, the integrated office communications business is becoming extremely crowded. In the UK, contenders who have shown their hands include GEC with its acquisition of A. B. Dick of Chicago; Plessey, which wants to promote its electronic telephone switch as an office communications product; and Racal, which has formed an information systems subsidiary, Gestetner and ICL are also dipping toes in the water.

From the Continent, Nixdorf was the first to take the plunge, and Philips, Siemens, CGE and Olivetti are laying their plans while CII-HB and Triumph-Adler are also interested.

In the US, IBM, Xerox, GTE, AM International, and Wang are in the thick of it, while Datapoint has just declared an interest and ITC is still looking for the right acquisitions.

Ready to take on IBM and Xerox

GIVEN that Nexos has big ambitions to slug it out head-on with the big boys of the office market like IBM, Xerox and ITC, what kind of company is it generally?

It is primarily a marketing company, dedicated to acquiring very strong systems integration skills. "There has been a fundamental shift in the balance of power between marketer and buyer," says Nexos managing director Muir Moffat. "So much technology is now available that it is much easier for a marketer to recognise an unfulfilled need and then find an engineer to design a product to meet it. There is so much technology around that there is no need to invent new ones."

In general, therefore, Nexos will be commissioning manufacturers to produce products to Nexos specifications for which in many cases it will have sole marketing rights. An example will be the new, very advanced word processor being developed by Logica to complement its VTS 100, already exclusively marketed by Nexos. Nexos will also adopt other products as it has with the Muirhead line of facsimile machines.

It will have software and systems development teams in house, but will subcontract much of the work, concentrating primarily on sales. To this end it has set up a ready-made sales force to take over the marketing of company UDS, which has rights to office products from Ricoh in Japan.

With UDS, there are about 100 people in Nexos, 120 of them in the marketing company Nexos UK. About eight people are employed on facilities products and six to eight in development. Including systems integration and testing, this should grow to between 30 and 50 within a year.

If it has to, Nexos may manufacture itself, but will prefer not to while there is capacity in the UK. The National Enterprise Board has 80% of the shares and Nexos is not precluded from taking stakes in companies in which it collaborates, if a shareholding would cement the relationship. It is not, however, an aim.

Nexos welcomes the government's plans to sell it off to the private sector once it is a viable company.

Men, Machines and Money is users' theme

FORUM 80, the annual conference of the IBM Computer Users' Association, will take place at the Royal Bath Hotel, Bournemouth, from Tuesday to Thursday, April 15 to 17. The general theme is Men, Machines and Money, and star performers include Robert Mackenzie on the economic state of the nation, and Edward de Bono on lateral thinking.

IBM chairman and chief executive Eddie Nixon will give a round-up of the last 12 months; Roy Atkinson, now Under-Secretary for Computers, Systems and Electronics at the Department of Industry will talk about microelectronics in the UK, and Howard Anderson, president of the Yankee Group will discuss computers in the home.

Fujitsu develops Josephson junctions

FUJITSU of Japan is the latest company to announce a breakthrough in Josephson junctions, semiconductor elements which need temperature close to absolute zero to operate. Josephson junctions, named for the UK physicist Brian Josephson, came in for widespread publicity last year as a result of the work IBM is doing in its research labs.

Fujitsu has announced that it has reduced the number of active elements required to make a one-bit memory cell from seven to three. It hopes to have a 64-bit memory device by 1981, but emphasises that the work is experimental.

Also in Japan, Nippon Telephone and Telegraph is working on Josephson junctions, and plans to use liquid helium to cool the devices to the very low temperatures where resistance to the flow of current disappears and materials "superconduct." (CW, January 3). NTT also claims that it can make the circuits work at temperatures between 15° and 20° above absolute zero, where both IBM and Fujitsu talk of 4° above.

Housing repairs on System 34

FACED with the problem of handling about 900 repair requests a week from tenants in 12,500 homes in the district, Wrexham Council has installed an IBM System 34 and four VDUs on which to run its housing maintenance service. It replaces a manual service which involved filling in special job tickets after a clerk had found the relevant house information card.



The Sweda L45-20.

Sweda introduces new family of cash registers to UK

THREE new electronic cash registers with special "paged" keyboards have been introduced in the UK by Sweda.

Called the L45 family of ECR's, comprising the L45-20, L45-25 and L45-30, they have been built to Sweda's specifications by the Japanese register company Omron.

Smallest in the family, the L45-20 provides the user with price look-up facilities for 170 items, a breakdown of transactions by 100 department totals as standard, a two-station alphanumeric printer (third printer optional) and the ability to accept nine methods of payment.

If more than 100 department totals are required Sweda has

provided the user with a "paging" system for keyboard headings: by flipping over the top "page" or template of the keyboard (the keys remain stationary) a microswitch is operated and a new set of keyboard headings on the second level come into use.

In addition to these features, the L45-25 has a transfer mode which can be used for transferring information from one register to one or more other registers.

Both the L45-20 and L45-25 are available in the UK now, and the L45-30 will be supplied from the end of this year.

Prices range from £2,400 to £3,200.

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Structured Design
Structured Programming
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Data-Directed Design

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Data Dictionary
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Nassi-Shneiderman Charts
Decision Tables
Warner Diagrams
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Pseudocode
Stick Diagrams
Structure Charts
How to Develop the Design
Evaluation of the Design
Packaging
Optimisation

Practical Problems
Developing the Design
Problem Definitions
Measurable Objectives
Estimating
Controlling Detail
Resistance to Change
Personnel Assignment
Software Package Selection
When to Use Which Method
Fitting to Your Standard

Using The Methodologies
Request Evaluation
System Survey/Feasibility
Definition of Objectives and Primitives
Definition of Physical Alternatives
Detailed Logical Design
Top-Down Implementation Plan
Detailed Physical Design
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The Workshop uses a large number of exercises featuring "real life" problems.

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EDUCOMP is a leading North American DP training organisation. Its courses on Structured Methodology are based on wide experience of actually using the techniques in a wide variety of installations. Our North American clients include The Government of Canada, Gulf Oil, Home Oil, DPMA, Association for Systems Management, Gandall, Bell Northern Research, Hudson Bay Company, Los Angeles Times, Blue Cross and The U.S. Government.

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THE INSTRUCTOR

The Instructor is Ron Taylor, the President of EDUCOMP. Ron is British and a former Assistant Director of the Management Systems Training Council. He has unrivalled experience of Structured Methodology. On a consultancy basis, he has installed the methodologies, prepared standards and managed implementation in a wide range of companies from coast to coast in the U.S. and Canada. He has an excellent reputation as a lecturer. Being British, he also has an understanding (often lacking in North America) of the differences in approach needed in the UK as opposed to the U.S. and Canada.

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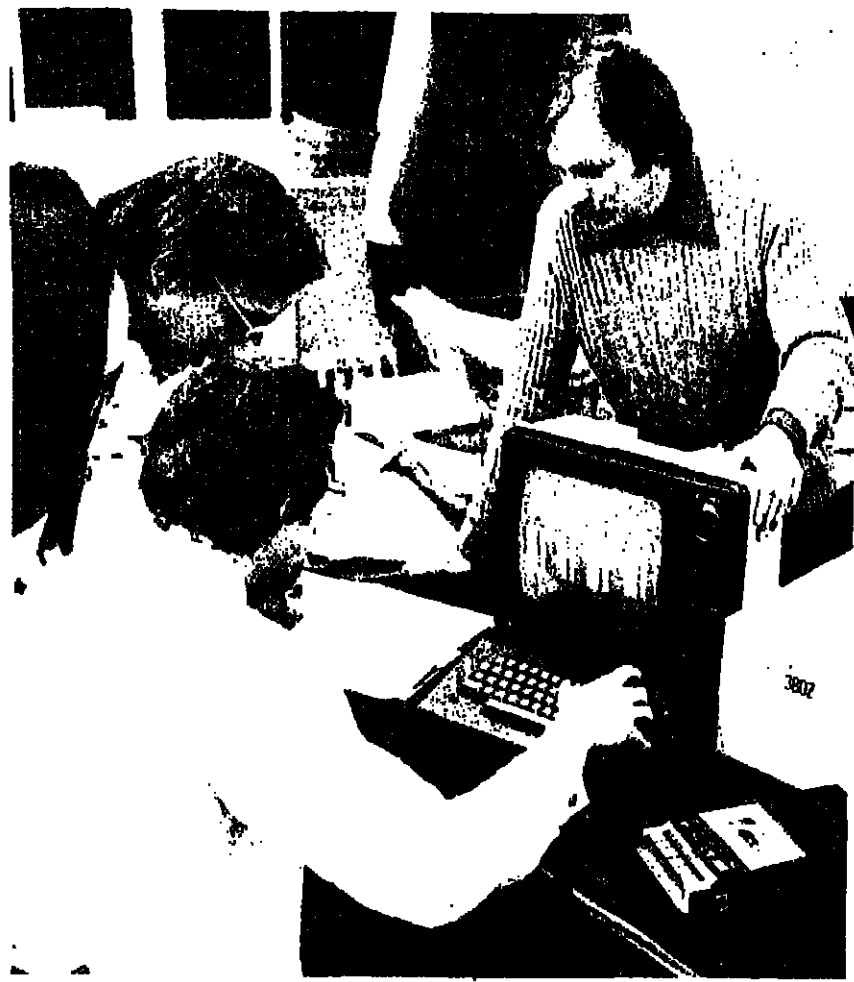
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Micros are undoubtedly having an impact. That much is obvious, not only to those of us who rely on computers for our daily bread, but to everybody.

Television runs programmes on the mighty micro, advertising hoardings wonder publicly whether we've had our chips yet, toyshops urge

us to buy their micro-based games for Christmas. But defining the real nature of that impact is another matter altogether.

Two views of 'revolution'

by Nicholas Enticknap

Research Machines' 3802 is typical of the small systems available for use in offices.

CANDIDLY, nobody has yet managed to predict exactly what effects the micro will have. If we take just one aspect, obvious but nonetheless a matter for pressing concern, how will employment be affected? For everybody who thinks that the dole queue will shortly equal the size of the population, there are others who propound with equal conviction the view that employment will substantially increase.

Neither side of this argument

has really got to grips with the policies needed to manage the change to a micro-based society, despite the fact that both sides agree that a considerable amount of disruption is inevitable.

The particular impact of the micro on the DPM is similarly the subject of a welter of different opinions. So, the reader might ask, what is the point of this article? Is it yet another piece of punditry by somebody who likes the sound of his own voice but doesn't have anything useful to say? Or is it, can it be, the answer to a prayer, a blueprint for the action the DPM needs to take?

While I hope it's not the first, I don't think it can be the second. What the DPM must do is for him to decide in the light of his own circumstances. What I can do is to provide an assessment of the nature of the impact, and follow it with some suggestions for action, based on what's actually happening.

I'll start at square one by asking what impact the micro is making in general. Many commentators use the word "revolution" to describe it. Revolution is a strong word; it implies not just fundamental change but a great deal of unpleasantness — well, let's not mince words — violence, in the process.

By no means everybody accepts that a revolution is happening. At the BCS micro-processor specialist group conference on the impact of the micro on the DP professional, the contrary position was argued very forcefully and very persuasively by former BCS president Gerry Fisher in a talk addressing precisely this question of the impact of the micro on the DPM.

Fisher observed that he had been a DPM for nearly two decades. In that time the nature of his task, or of his responsibility to the organisation that employed him, had changed not one jot.

That task had been and still was to provide a data processing service to the organisation in the light of that organisation's corporate objectives, of which the most fundamental, he averred, was to make a profit. Seen in that light, the micro is merely another tool to do the job.

That of course is true, as far as it goes; what the argument overlooks, I would suggest, is that the nature of the tools available can change the nature of the job. The invention of the printing press, for example, made a drastic change to the nature of book production; the monks in their scriptorium were rapidly superseded by organisations we would now describe as publishers.

This point, in our current context, was well made by the speaker who followed, Gerry Fisher at the same conference. Alex Hannam of Vickers, he argued that micros would be incorporated in all kinds of business aids, such as telex, facsimile transmission, clocking-in devices and the like, and that as they did so they would become the computer manager's responsibility.

He even went so far as to say

that if the canteen manager were to come to the DPM complaining about the malfunctioning micro in his dishwasher for help seriously and do what he could do to help, rather than treat the matter as very much not his pigeon.

The idea of the corporate DPM fixing the dishwasher is a first sight rather bizarre; it certainly suggests as much of a distinction between the DPM now and in the future as between the publisher and the monk in the scriptorium. Recognising this, Hannam suggested that the title be changed to reflect the different nature of the job; his preferred new title was business service manager.

These are two strongly contrasting views of the same phenomenon by two observers.



Gerry Fisher... "the micro is merely another tool to do the job"

very similar positions. Is there a radical going to change the nature of the job, or will it have only a marginal impact? The answer to these questions we must answer closer to the micro itself, not in terms of its technical specifications but in terms of its essential nature.

Is the analogy between the quill pen and the printing press fair one, for example? I think not. The quill pen was a tool; the printing press was a machine. The micro is a machine, and it is a machine that can change the nature of the job.

That of course is true, as far as it goes; what the argument overlooks, I would suggest, is that the nature of the tools available can change the nature of the job. The invention of the printing press, for example, made a drastic change to the nature of book production; the monks in their scriptorium were rapidly superseded by organisations we would now describe as publishers.

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REPORT ON STANDARDS

The long-term significance of Fortran update

BY now, many Fortran programmers will have heard of the core plus modules project, but may well be unclear what it means or how it will affect them. Since the vast majority of them are not yet working even with Fortran 77, it is likely that they will not be affected for some years.

However, in the long term it could make a significant difference to them.

At a recent meeting of the International Standards Organisation sub-committee on programming languages in Turin the International Fortran group met for two full days and discussed a wide variety of topics, but since the core plus modules concept is at the heart of the project, most of this article will be concerned with giving my understanding of the American National Standards Institute's committee X3J3's current thinking about it.

Before discussing the concept itself, let us consider why it is necessary as "why can't they leave it alone" is a common plea. In fact, leaving it alone is almost the only option X3J3 does not have.

There is tremendous pressure to add features helpful for certain applications such as real time. For example a BIT data type was strongly urged for Fortran 77.

People needing to use Fortran but who have experienced the advantages of the far superior control and data structure facilities in languages like Pascal and Algol 68 agitate for such features to be added to "drag Fortran kicking and screaming into the 1980s" as it is sometimes sarcastically called.

People building or wishing to use array processors want explicit array and parallel processing features.

If X3J3 were to set its collective face against such developments, all that would happen is that non-standard extensions in such directions would proliferate.

This happened with the first Fortran standard and such extensions would implement the same functionality in different and mutually incompatible ways.

This can already be seen in the different kinds of "structured Fortran" already provided by "extended" compilers or by processors.

And, if even this were not sufficient reason, X3J3 has been directed by its parent committee, X3, to meet a Codaasy requirement for database facilities in the next revision.

On the other hand, the committee is conscious of the enormous investment represented by existing programs and packages, and of the awful warning, in the shape of PL/I, of what happens when every imaginable facility is added to a language.

How could the committee cope simultaneously with the demands to add facilities to Fortran, to modernise it and make it more "regular" (i.e. orthogonal), to keep it compact and implementable on small machines, to maintain continuity with the past, and finally, to retain the Fortran virtues of being easy to learn and write and efficient in

compilation and execution?

The answer it came up with was "core plus modules". The idea is that one starts with a "core" of essential features of the kind expected by almost all programs. These include input/output, essential data types and control structures.

This would be a Fortran stripped down to the bare essentials, probably no larger than, but possibly more powerful than, the present Fortran 77 subset.

This would be a viable language in its own right, suitable for the expression of basic algorithms, for initial training and student exercises.

To this could be added a variety of modules which might be functional modules to supplement the expressive power of the core, or applications modules to provide particular facilities such as real time, graphics and database.

Thus the whole language might be large, but any user or implementor could limit the size of the language for himself by selecting only those modules he needed to add to the core.

The Turin meeting heard a presentation by Win Burke, the X3J3 member who is chairman of the group looking into this particular aspect, on the architecture of the new Fortran and the criteria for selection of items for the core.

Space precludes a discussion of the present view of these criteria, except to say that the intention is to make the core language simple, efficient and regular, with as little internal redundancy as possible, and recognisably Fortran despite the fact that it will almost certainly contain features (especially for looping) which do not appear in standard Fortran now, and others (perhaps, for example, arithmetic IF) which have been in the language from the outset.

To cope with the need to preserve the investment in existing programs written in earlier versions of the language, the first module to add to the core C is the "obsolete module" O.

This contains features of Fortran past and present which in the opinion of the committee have been superseded by better features with equivalent functionality.

Candidates for the O module also, of course, have to meet certain criteria. The intention is that C+O would also constitute a complete language in itself.

What is not now clear is the relationship of C+O to Fortran 77. At last year's international group meeting in London and the BCS Fortran Forum, it seemed that there would be a Fortran 77 module, F, containing non-obsolete Fortran 77 not in the core, so that C+O+F would contain Fortran 77 as a subset.

It was also implied that there would be other functional extension modules containing new features.

This seems now to have been discarded, at least for the time being, in favour of a single extension module E. C+E would constitute a complete language, just as C+J would.

However, it is not clear now whether C+O+E or C and the applications modules.

what its relation would be to Fortran 77 if it were. Possibly it is now decided that there are no non-obsolete features of Fortran 77 which would not be in the core. Whatever the relationship to Fortran 77, it is an important point whether C+O+E would be a viable language. If it is, it implies that all extensions in E have to be consistent with the obsolete features in O.

This places corresponding constraints on the syntax, especially considering the limited character set of Fortran.

It seems inevitable that there will be some increase in the character set, but the committee is anxious to keep this to a minimum.

It may be significant that X3J3 has before it, but has deferred consideration of, a proposal to make blanks significant. Either that or a large increase in the character set, would tend to make the new Fortran less Fortran-like.

It seems to me that a simple and more Fortran-like solution is to say that any modules (the O module and any extension modules attached directly to the core) should be mutually independent, thus freeing us from the need to ensure cross-the-board consistency.

Since programmers are used to constructs being context-dependent (for example, the same name meaning different things in different program units) this need not cause too much trouble.

There would need to be special facilities to cope with two situations. One is when a programmer needs to use two independent modules in the same program unit.

This could be done by means of a non-executable statement telling the compiler what module to assume until further notice, the default being core only.

This would mean that all Fortran 77 programs would need to be recompiled to use a core-plus-modules compiler, but that is an occupational hazard anyway even with a new version of the same compiler.

More difficult is the case where a programmer is trying to combine features of two modules in the same statement. It could perhaps be overcome by means of some prefix or suffix notation (which in practice would be rarely used if the "select module" feature were also provided) but would be better done by designing the modules in such a way that this need not occur.

The core plus modules concept is essentially a hierarchical one, and there is no reason why further modules should not be attached to C+E or C+O, as well as just to the core C.

The committee's intention is that no modules should attach to C+O for obvious reasons; but it envisages applications modules to be attached to C+E, rather than just the core, although that is not ruled out.

At present Burke's group is particularly concentrating on the design of the interface between C+E or C and the applications modules.

Brian Meek discusses some of the subjects discussed at Turin

Scarecrow will not be first draft

THE X3J3 committee is very conscious that it is now a design committee rather than (or as well as) a standards committee, and that the proposed core plus modules architecture is not one which, as far as is known, has been used for Fortran to date.

For this reason, one of its immediate intentions is to produce a "scarecrow" version of the language. This will be a rough model, using for the core and modules any material that happens to be to hand, simply to see if the core plus modules architecture can be made to work and that there are no hidden unforeseen snags.

Once the scarecrow has done its work in proving the architecture, it will be discarded, like the aircraft designer's "mock-up". The scarecrow is not in any way to be regarded as a first draft, however rough, of the actual revised Fortran.

Simple way to new control structures

THOUGH core plus modules and associated discussion of the requirements of application areas like real time and database did tend to dominate the Turin meeting, other matters were discussed.

Jack Humar of Canada gave a paper on control structures while Jeanne Martin of the Lawrence Livermore Laboratory presented a proposal to include macro facilities and additional compilation directives into the language, both stimulating lively discussion.

Macros would provide a simple method for introducing new control structures, with the danger for portability and readability that everyone would define their own, slightly differently.

Conditional compilation could allow portability by, for example, allowing variables to be REAL or DOUBLE PRECISION depending on the word length of the machine.

Macros were criticised on the grounds that they did nothing that preprocessors or external macro editors did not.

But it was argued that the facility does need to be within the language since otherwise only the expanded code, which may be difficult to read and maintain, can be transported.

Array handling was also discussed, with Humar claiming that constructs like:

A=A/(I,J) must for simplicity be regarded as representing implied DO loops (meaning that at some point A(I,J) changes itself to I, and all subsequent array elements are unchanged).

This was strongly attacked on the grounds that with array processors coming in we must start "thinking parallel" and must add parallel features to the language, so that sequential constructs like the DO loop are used when sequencing is needed and parallel constructs used when this is more efficient or, as in the above example, a requirement of the operation.

In the general discussion, doubts were expressed in several places, particularly from the UK and Canada, about the committee moving "too far, too fast".

'Core plus modules' approach could lead to greater flexibility

WHAT the committee has embarked upon is an attempt to give to Fortran the kind of structure and architectural unit which it has never had, and a framework for future development.

One of the most interesting things that appeared at this meeting was that the core plus modules is regarded as a dynamic rather than a static structure.

It is envisaged that features in applications modules which prove to be useful in a wider context can in later revisions migrate to the extension module, or even, in time, to the core.

Successful experimental features added to the extension module will stay from revision to revision, or possibly move to the core, while unsuccessful ones will be transferred to the obsolete module. (There are obvious candidates for the obsolete module among the innovations of Fortran 77.)

It is even possible that features previously declared obsolete might be revived though it is expected that the module will gradually grow, with nothing disappearing altogether unless no voice is raised against its deletion.

As for the core, it is intended that this should remain as stable as possible from revision to revision, and change only slowly, if at all.

Core plus modules is not just an architecture for Fortran 8X; it is a plan to enable Fortran to meet changing needs over a much longer period.

The decision to try to take Fortran in this direction was a courageous one, and the committee should be admired for it — and for its subsequent application to the task — whether or not one is sympathetic to the aim.

After all, it is an ultimately thankless task since, whatever

form the new Fortran takes, it is bound to be wrong for somebody.

Enthusiasts for reform will probably think that too few changes have occurred; X3J3 has always to take a conservative line. As its chairman, Jeanne Adams, points out,

Yet there are many Fortran programmers — the kind who fear the removal of bugs from their compiler in case the new version discovers errors in their programs which the old one did

not pick up — for whom any change at all is "too far, too fast".

The committee may fail; but the intellectual and professional ability of those of its members I have met leads me to believe that, if so, the failure will not be in the technical quality of their work but in their ability to convince a suspicious and set-in-its-ways Fortran community that they have done the right thing. And, fail or succeed, it will have been a brave attempt.

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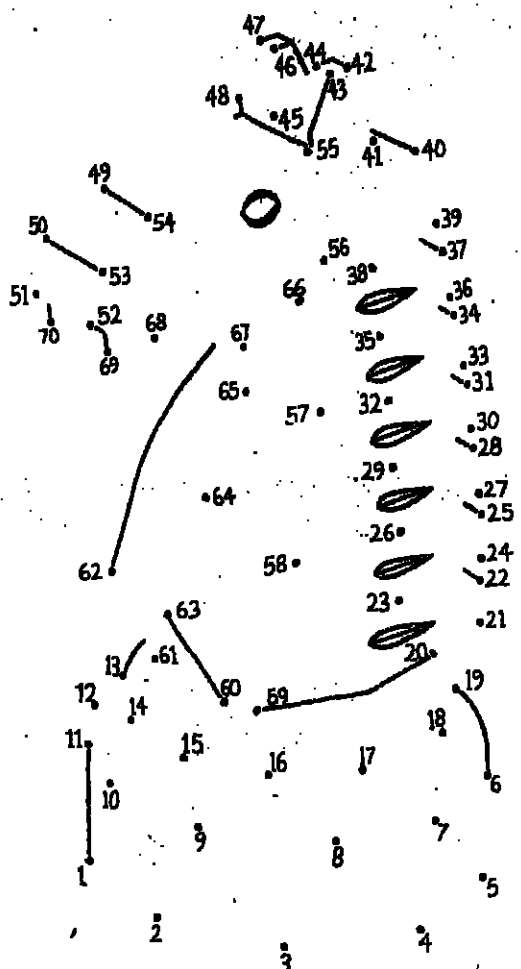
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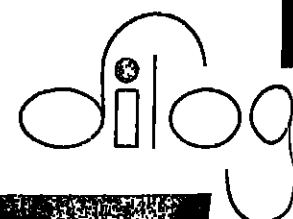
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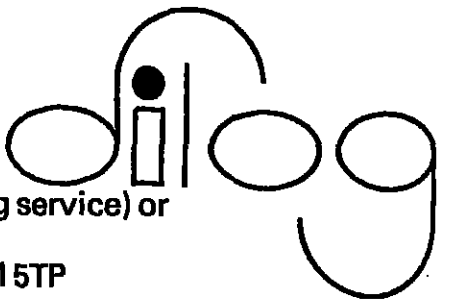
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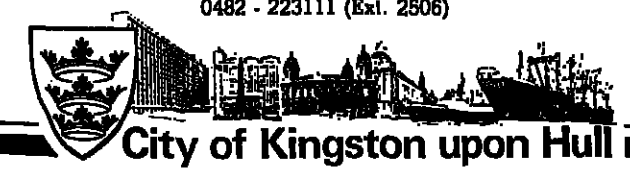
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Real-Time Mini & Micro

Are you currently involved in Message Switching, Communications, Military Systems, Modelling or Simulation? If you can offer sound experience in any of those fields, plus a hardware background encompassing either PDP11, Data General, Intel 8080, Zilog Z80, or M6800, with knowledge of Assembler and at least one high-level language (eg CORAL66, Pascal or Fortran), you should be ideally suited for a position with this leading Systems and Software House, Based in Central Southern England, our Client has several UK offices, so whether your choice of location is North or South we are sure they will be able to accommodate you. Superb career opportunities and promotion

prospects are offered to bright and ambitious Senior Analysts and Programmers, Project and Team Leaders and Systems Designers, who will be able to grow with the Company, providing its future management and top level technical specialists. Whilst a degree in Computer Science or equivalent would be advantageous, emphasis will be placed firmly on depth of experience and potential. A full benefits package is offered plus a very attractive salary.

£6.5-10.5K

North Sussex

A major redevelopment of the computer facilities run by this International Manufacturing Organisation has created openings for a Systems Analyst (2-3yrs experience), a Chief Programmer (1-2yrs man management experience, COBOL, ICL 1900 preferred) and several more Junior Programmers (2yrs experience, COBOL and business BASIC). Excellent benefits including car scheme, flexitime etc. **£6.6-8K + carscheme**

Sales Manager

Young and ambitious Sales Executive required by this dynamic, London-based Software House. Experience of selling hardware is essential, previous involvement with financial and production control systems packages an additional advantage. Responsibilities will be many and varied, but the rewards are excellent. **c.£16K + car**

Mainframes COBOL

UK and European Opportunities

One of the acknowledged market leaders in high-level systems and software development is entering a new expansion phase creating exciting opportunities in the UK and at various European centres. A challenging opportunity now arises for COBOL Programmers with 2 or more years experience on any major manufacturers' mainframes to join one of several project teams engaged in a wide variety of commercial and financial on-line and batch applications.

You will be expected to have a sound knowledge of your respective operating system, and every opportunity will be available to enhance your present skills and to make a valuable contribution to the successful International Group. Promotion is mainly from within and therefore a well defined career path into management and project leadership positions is established. Our Client is reputed to be amongst the highest remunerators in the industry in addition to which they provide excellent pension, life assurance and equity participation schemes, frequent cost-of-living reviews, "out-of-pocket" expenses and, above all, a choice of motivating projects to work on. Interviews will be held during the first three weeks of February and firm offers will be made without any of those usual annoying delays! Expect to talk in the range:

£6.5-8.5K (UK), £13.5-16K (Europe)

Design Manager

A unique opportunity to combine your in-depth technical expertise with management responsibilities is offered by this internationally renowned supplier of computer-based Process Control and Automation Systems at their Hertfordshire headquarters. As Design Manager, reporting at board level, you will be responsible for a team of technical specialists developing system software such as Compilers, Operating Systems, Linkers, Editors and Assemblers on DEC hardware. You will be influencing the future success of the Company by identifying new development areas, and producing new software packages which will ensure that our Clients maintain their market leadership in the process control systems field. It is unlikely that candidates with less than 6 years experience in software development will be qualified for this challenging and demanding role. The benefits offered are substantial, including free life assurance, pension, flexitime and generous relocation assistance where necessary.

£9.5-11K

Sales Support

Consultancy posts with this major UK Bureau are currently being offered to DP professionals with a broad commercial background, to support sales of MVS services. Analysis and proposal writing involved, City base. **c.£8.5 + car**

Holland

Systems Designers and Technicians required for a Data Communications System, background should include computer networks based on Packet Switching. Machine experience on PDPs or Philipminis. **to £15K**

Eng. Support

Product Engineer with some hardware experience in electro-mechanical systems and micro required to set up Engineering Support Function for our North London Client's prestigious products. **£8K + car**



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London SW7 4RW
01 373 3063

ARE YOU TOP OF THE LEAGUE? WE ALMOST ARE!

IMPC have been retained by the largest manufacturer of interactive business systems in Britain and who currently lie second in the British Computer Manufacturer stakes—

BUT NOT FOR LONG

Programmers, Analysts and Consultants are currently needed to work on the expansion of their Applications Product Development Program — aimed at producing high quality Software packages for specific industries including finance, the automotive industry, retail distribution and manufacturing.

You need preferably, a knowledge of DBC hardware, RSTS and BASIC — but relevant experience in other interactive business systems will be considered.

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If you have three or more years' experience in computing together with a sound applications knowledge, especially in accounts systems, and the ability to provide business solutions to large, medium companies at Director level, then a vigorous market is open to you.

Ref. No. JB 12

DIVERSIFIED, MULTI-NATIONAL COMPANY AND MAJOR COMPUTER MANUFACTURER REQUIRES SALES EXECUTIVES TO SELL A RANGE OF MEDIUM-SCALE COMPUTER SYSTEMS IN SCIENTIFIC/ACADEMIC/COMMERCIAL MARKETS. WELL-ESTABLISHED IN THE NORTH, WITH A SOLID YORCH BASE, THE COMPANY IS A PROFITABLE, HIGHLY MOTIVATED AND GROWING ORGANISATION OFFERING CAREER DEVELOPMENT AND SECURITY FOR THE 80'S.

JOIN A SUCCESSFUL TEAM, selling high performance, competitive, reliable products — proven over a decade — YOUR opportunity for success.

If you have a proven record in DBC sales, top level technical and commercial background, then act quickly and this prospect!!!

Ref. No. BP 7 JB 11

ONE OF THE MAJOR SERVICE ORGANISATIONS IN THE UK AND PART OF ONE OF THE COUNTRY'S LARGEST PRIVATE COMPANIES, OUR CLIENT HAS THE BACKING AND RESOURCES TO CONTINUE AT THE FOREFRONT OF DEVELOPMENTS THROUGH THE EIGHTIES — AND BEYOND — FORGET CITY COMMUTING PROBLEMS — EASY ACCESS AREA — THE OPPORTUNITY IN A GROWTH ENVIRONMENT WITH DIVERSE CAREER DEVELOPMENT.

If you have that necessary track record in business/equipment/bureaux; experience of working at Director level; variety of concerns; plus that vital business expertise, you can be going a great deal further than you think.

Additional candidates with enthusiastic ability in a pressure environment should also apply.

Ref. No. JB 14

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* Interviews can be held in Manchester

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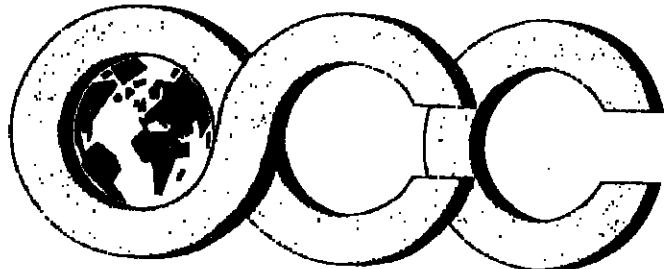
Our Client has experienced rapid growth in the computer industry.

They require an experienced Manager or Minis Salesman in his thirties to head the venture, the position will initially be based in Manchester.

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FOR YOU

FOR FURTHER DETAILS
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sems



Our clients "Société Européenne de Mini-Informatique et de Systèmes" is expanding its operation in the UK market. A member of THOMSON-CSF, one of the world's leaders in electronics, SEMS is currently marketing worldwide a range of MINI Computers, including the SOLAR and the MITRA series, offering a wide-ranging involvement in the industrial, scientific and also business systems markets

SALES EXECUTIVES

c £15,000 + Car

Two positions are open to Sales Executives who will deal with specific areas of SEMS established market, i.e. industrial, commercial and scientific mini-computer systems. One of the sales executives will be involved with the interactive market using the recently introduced SEMSIS.

The ideal candidates will be established Sales Executives with impeccable sales records who will want to continue working in similar roles assuming key positions in an expanding sales force.

Preference will be given to candidates with a programming or engineering background who are experienced technically in the field of mini computer systems applications.

Product training on SEMS products will be given. The company is based in Feltham. Full conditions of employment will be offered including some relocation expenses if applicable. The package negotiated for the first year will be on a full salary basis incorporating the amount of commission a top Sales Executive would expect to earn.

Ref. 500/CW/Renée Nute

The positions can be based in London or elsewhere. Initial interviews will start next week at our premises. Final client interviews will take place soon after in Feltham.

Please ring Renée Nute on 01-242 9356 or write to the address quoted. If it would be more convenient to telephone in the evening or during the weekend, please ring 01-874 6372.

OCC Computer Personnel Limited, 18 Bedford Row, London WC1R 4EB



You want Interest? then Invest in Banking

An international group supports its activities at a city based computing centre. Having recently made a significant investment in IBM Database and On-Line equipment, they now seek to increase their Programmer and Analyst complement. This rationale presents some unique opportunities at a number of levels for people who have between 2 to 4 years experience in a financially orientated environment. A background, or the desire to gain further experience in RPG II or COBOL, and with DOS/VS, CICS/VS, SPMOL, DLI and IMS are general criteria. The successful candidates will benefit from training, remuneration and career development schemes second to none. For immediate consideration, telephone Rex Ashcroft quoting reference 3079.

**Lloyd Chapman
Associates**

123, New Bond Street, London W1Y 0HR 01-499 7761

Telecommunications and Product Engineering Manager

Our Bibliographic Services Division provides large scale on-line and batch services to its users, both within the UK and, increasingly, in Europe. The responsibilities of the Telecommunications and Product Engineering Manager include the planning and establishment of effective telecommunications network facilities for these services; and training and advice to users on the selection, installation and use of terminals and other electronic equipment.

Candidates must have a suitable qualification in Electrical and Electronic Engineering and have

BL The British Library

had formal training in telecoms and GPO DATEL services. Experience in the planning and maintenance of a large scale data communications network is essential, as is the ability to manage staff with a variety of expert skills. Experience in any of the following would be an advantage: DIGICO equipment, teletype terminals, ICL and IBM communications hardware and protocols, Systems Reliability Equipment, GPO DATEL service ordering and approvals, International Interface standards.

The post is graded SEO and attracts a salary of £9,130-£9,680, including Inner London weighting. For further details and an application form (which must be returned by 22 February 1980) please phone Celia Woodall on 01-636 1544 ext 518 or 520.

ANALYST PROGRAMMERS/ PROGRAMMERS

Fulham

up to £8677

Opportunities exist within the British Gas Headquarter's Computer Services Department, following the recent expansion of the Department, for Analyst Programmers and Programmers to join project teams in the following areas:

Systems Support—providing a maintenance and development function for our mainframe computers (ICL 2972 Univac 1100/21).

Microcomputer Projects—for a variety of projects involving evaluation and development of micro systems.

Database—to specialise in the use of modern high level database languages and techniques.

Computometrics—to work on all aspects of computer performance evaluation using hardware and software aids.

Applicants should have between 1 and 3 years' relevant experience and preferably a degree level qualification.

The department is located at Fulham where a new purpose-built building, to house the department, is currently under construction.

Appointments will be made within the range £5745-£8577 according to qualifications and experience. Salaries quoted are inclusive of Inner London Weighting Allowance. In addition there are the benefits normally associated with a large progressive organisation.

Please write with full details of age, qualifications, experience and current salary, quoting reference EP/764002/CW to the Senior Personnel Officer (London), British Gas, 59 Bryanston Street, London W1A 2AZ.

Closing date for applications, 18th February, 1980

BRITISH GAS

Financial Services Department Programmer/ Analyst

£3379-£5706

Following internal promotion we have a vacancy for PROGRAMMER/ANALYST based in our Computer Section at the Town Centre, Harlow. The Council operates a 48K ICL 2904 with ED 60 and magnetic tape together with a communications systems comprising of some twenty terminals based upon ICL 7502 and Philips PPS 8000 equipment with plans for further enhancement. Applicants should possess a minimum of two years' overall computer experience preferably on ICL machines using COBOL.

A flexitime scheme is in operation. Housing may be available, full removal expenses paid, travelling expenses, lodging allowance, legal and relocation expenses available in appropriate cases. Sports and Social Club.

Application forms and job description are available from the General Manager's Department, Harlow Council, 17 Adams House, The High, Harlow, Essex, CM20 1ED. Telephone Harlow 2882, Ext. 88.

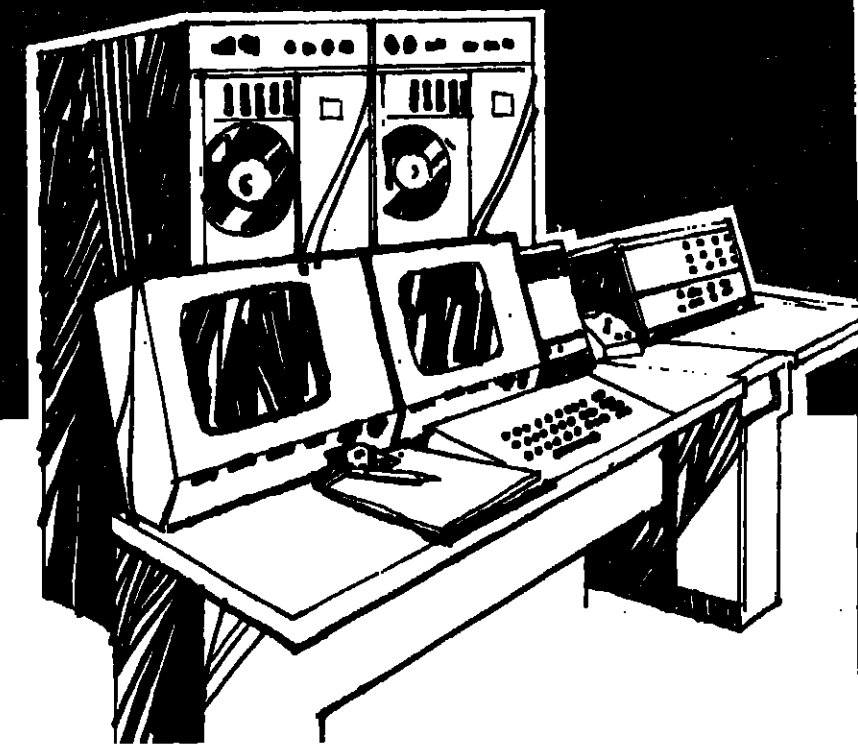
Closing date: 18th February 1980.

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computel

Senior Sales Executives

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Located in Berkshire, Computel is one of the largest telecommunications based service bureaux in Europe. It is also one of the fastest growing companies in any sector of the computing industry with an annual rate of growth in excess of 50% per year.

To sustain this growth the company is seeking to recruit several senior sales executives. Ideal applicants will have experience, preferably gained in bureaux services, a record of success and the ability to obtain new business and develop existing accounts.

These are senior positions within the company and it is unlikely that anyone with less than three years successful sales experience will be suitable.

The remuneration package is high with a BASIC SALARY OF £8,500, a company car, and a commission scheme with a guarantee period and no ceiling on earnings. This is a real opportunity to join one of the most successful computing services companies in the UK. For further information telephone

Kevin McCourt or write with brief details quoting reference 3077. All applications will be acknowledged and treated in the strictest confidence.

**Lloyd Chapman
Associates**

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MYRIAD

PROGRAMMING MANAGER

N.W. OF LONDON

£11,000 + CAR

This senior position has recently been created due to the continued expansion of our clients operations in the U.K. The Programming Manager will direct small development teams producing a range of technically advanced software products on IBM equipment and will contribute to the design of future systems in addition to identifying improvement potential in existing software.

Candidates for this challenging role should have a strong data processing background and proven experience of supervising programming staff. IBM Assembler knowledge is essential and therefore SYSTEMS PROGRAMMERS, seeking a career advancement, will qualify for this role.

The successful applicant will possess a genuine interest in software development, coupled with the drive and personality to manage a fast growing department.

A generous starting salary is further enhanced by a full range of employee benefits, including full relocation expenses where appropriate and the spacious new offices have ample car-parking facilities and are also well serviced by public transport.

REF S1/3101

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A new communications group is to be established in Germany, by one of Europe's leading Consultancies. To date, the company has specialised in Database/T.P. projects and has scored major successes in the field of innovative and effective design.
If you have X25 or similar software experience, and would relish the challenge of developing a new European group... **Contact: Andy Wright**

Sales Executives

Leeds Based Earning c.£14K + Car
A well known computer manufacturer is seeking two SALES EXECUTIVES to sell small business systems (h/w and s/w) within the Yorkshire area. Applicants should have a professional attitude and successful sales experience in the computing industry. **Contact: Bev Stevens**

Sizing and Performance Consultant

London negotiable to £11,000
Our client is a major computer manufacturer, whose much-publicised success in the market place is creating a further demand for quality DP professionals. In particular they are looking for a Consultant to have specific responsibility for the sizing and performance aspects of mainframe proposals and implementation. Candidates should have a thorough knowledge of the interaction of computer hardware and software systems. Any experience of system tuning, configuration exercises or evaluating manufacturers hardware and systems proposals would also be relevant. Candidates must have the ability to present and justify their technical solutions. Join a company where your specialist skill will be recognised and rewarded - with the continuous challenge of new projects and new solutions. **Contact: Bernard Kiernan**

Analyst/Programmers

London Area start c.£7,500-£9,500
One of the foremost - and certainly the largest - independent Consultancies in the world, requires Analyst/Programmers with good on-line design and implementation experience to join the London office. Specific machine or language experience is not important, although a thorough knowledge of the current environment is essential. Excellent salaries and benefits - including BUPA - plus career opportunities world-wide. **Contact: Andy Wright**

Senior Programmers

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Our Hampshire client, undertaking advanced development work on a large real-time database system, now need to strengthen their team on this project with additional senior staff. The system is being built around a powerful Burroughs B6800 machine and incorporates a DMS 2 database with a multi-terminal real-time network. Candidates must be mature, senior individuals with several years programming experience on real-time and/or database development projects. Leadership qualities and a natural ability to readily conform to strict standards will be sought. Wonderful opportunity for career advancement and a truly magnificent employment package. **Contact: Mike Creamer**

Programmers

Berkshire up to £7,000
A well established British company specialising in industrial systems has opportunities for Programmers to join the expanding development teams. Candidates, preferably graduates with at least twelve months programming, should have experience of minicomputers in technical, industrial or process control applications. Large company benefits including relocation. **Contact: Jim Baker**

Micro-System Programmer

Cambridge £5,000-£7,000
A small, dedicated system design company involved in development of an advanced word processors system require an additional Programmer for the next stage of the project. This will involve incorporating a communication network into the system with all associated software. Candidates must be competent Programmers with some experience of a high level language such as BCPL, CORAL, RTL2, etc. Interactive real-time design will be an attractive background. **Contact: Mike Creamer**

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International Personnel Consultants,
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- ★ Mathematical Modelling
- ★ Defence Systems
- ★ System Assessment
- ★ Command and Control Systems
- ★ O.R.
- ★ Statistics
- ★ Linear Programming
- ★ Systems Design
- ★ Signal Processing

All candidates should have the ability to think and work creatively as members of project teams and be able to demonstrate good personal communication skills. More senior people will have had recent PROJECT MANAGEMENT/LEADERSHIP experience. These positions are London based but there are also opportunities for O.R. specialists, with experience in the Oil and Gas industry, to be based in Aberdeen. The Company offers excellent benefits and genuine opportunity for rapid progression.

If you can accept the challenge of Scicon and are suitably qualified, please contact Jack Cowdy, Director, on 01-803 7335.



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Appointments are on a single-status, renewable annual contracts, with regular paid UK leave. Candidates must be physically fit and hold a current UK driving licence. For further details and an application form please telephone 01-629 2357 or 2358 (evening reference 8493) or dial 100 and ask the Operator for Prephone 2422, or write with full c.v. to Astral Recruitment Associates, Astral House, 17/19 Maddox Street, London W1R 0LY.

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Further details and application forms may be obtained from:

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Closing date for applications: February 28, 1980

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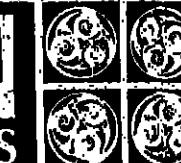
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Applicants should send their CVs to the Director of Personnel and Management Services, University of Dundee, Dundee DD1 1TA.

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A statement must be made at the time the advertisement is placed saying which of the exceptions in the Act is considered to apply.

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university college of swansea

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The positions below are a sample of the latest of a long and ever-growing list. If you feel you fit one of them, please get in touch. If you don't fit one of them, still get in touch. What we don't have now, we will have later.

IBM OS SENIOR OPERATORS

This is an excellent opportunity for an Operator with approx. three years' OS VSI exp. to join a leading financial organisation based in C. London. As standards at this installation are extremely high prospective applicants are expected to be technically competent and fully conversant with both JCL and Utilities. Prospects for career developments are excellent, and fringe benefits include sub MORTGAGE, annual BONUS, LVs and mileage allowance. **£6500**

IBM OS OPERATORS

12 months' OS experience is a requirement for this City based company utilising a newly-installed IBM under OS VSI. Ambitious Operators will benefit from the outstanding prospects into Shift, Management or Technical Support. Benefits inc. sub MORTGAGE, Restaurant and LVs. **£5600**

IBM DOS OPERATORS REQUIRED FOR NEW RANGE HARDWARE

We have a number of clients in and around the London area who are seeking Operators with approx. 12 months' DOS exp. Positions are currently available on mid-range IBM 370 hardware but most of our present requirements are for companies installing New Range equipment (4331, 4341, 3031) this year. Shifts and benefits vary. **£5500**

IBM DOS OPERATIONS SUPERVISOR

Our client based in C. London, requires an Operations Supervisor (aged 25+) with proven experience in a Supervisory/Management capacity, to assume full responsibility for the Operations Department. Intelligence, good technical skills and the ability to communicate effectively at all levels, are pre-requisites for this position. An IBM 4341 will be installed later this year, replacing the current mid-range IBM 370 under DOS VSI. Excellent benefits include Annual BONUS, LVs and N/C Pension. **to £8000**

IBM PRODUCTION CONTROLLER (DAYS)

If you are conversant with OS JCL and Utilities, and wish to develop your skills in a technical environment, this is the ideal opportunity. Your main responsibilities will be to prepare and maintain JCL, set-up and monitor production runs, system testing, restores/security "back-ups" and general troubleshooting. Applicants should be mature, at least Shift Leader status and possess a minimum of three years' experience within Operations. This C. London-based company utilising New Range hardware offers excellent prospects for career development. Benefits inc. MORTGAGE subsidy and LVs. **£6000+**

SOFTWARE SUPPORT TRAINEES

Applications are invited from ambitious, self-motivated people to join a team involved in providing support for a wide range of computer applications. Some data processing knowledge would be useful, as would experience in a "problem solving" environment. However the prime requirements are the ability to communicate well at all levels and a good academic background, preferably a degree or equivalent Ref. PS1. **(Comprehensive training) c £4500**

BURROUGHS OPERATOR

A City based financial concern has a requirement for an Operator with 18 months+ experience on Burroughs 1700 equipment. The successful candidate will operate the existing hardware until the "change-over" to new equipment has been completed. He/she will then be retained on New Range IBM hardware on a 2-shift system will be in operation. There are excellent company benefits including SUBSIDISED MORTGAGE, 7pp LVs p.d. and 4 weeks holiday. Ref. PS2. **To £5700**

PDP OPERATOR - DAYS

A minimum of 18 months' Operating experience, preferably gained with PDP-11 equipment, is required by this North London company. The chosen applicant, who should be mature and intelligent, will operate a PDP-11/70 on a DAYS ONLY basis. Ref. PS3. **c £4800**

IBM SYSTEM ENGINEERS

Our client is one of the world's largest independent suppliers of system software, they require 4 IBM DOS system programmers (2 for ASSEMBLER and after training the ability to support their range of software products. For more detailed information please telephone Robert Lovelady - Now. **to £9000**

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SHIFT LEADER

We need an experienced Computer Operator to lead a three-person alternating shift operating the Laboratory's ICL 2960.

Salary scale £3,887-£4,512 + £4.13 for each evening shift worked.

Application forms and further particulars may be obtained from H. R. Clayton, Senior Assistant Registrar, The Registry, The University, Canterbury, Kent, CT2 7NZ (Tel: Cant. 86822, Ext. 263), quoting reference MB0/2, to whom completed applications should be returned not later than 15 February 1980.

BOX NOS.

Box number replies should be addressed to:
Box No. 410
c/o Computer Weekly
Dorset House
Stamford Street
London SE1 1LU

Senior Computer Operators

Up to £6,099

Westminster

To be involved in the operation of a Data General C330 minicomputer in Westminster.

North Thames Gas is developing a Customer Service computer system to achieve improvement in the standard of service to our customers and it will shortly be operational in our Westminster office. It will be a real time system on a Data General C330 minicomputer servicing over 60 VDU's.

We are now looking for two Senior Computer Operators who will be responsible for the efficient operation of the system. You should ideally have a minimum of two years computer operations experience, including use of large exchangeable discs, magnetic tapes and communications equipment.

We will pay you well, the starting salary will be in the range £5233-£6099.

The successful applicant will be required to work a 2 shift system for which a payment of 13 1/2% of basic salary is made.

Our range of benefits is what you would expect of a large, successful organisation and includes an active Sports and Social Club.

If you feel that you could make your mark in this challenging environment then please telephone 01-993 0914 ext. 34 and talk to Geoff Fenton, or write to the Senior Personnel Officer (H.Q.), North Thames Gas, North Thames House, 17-21 London Road, Staines, Middlesex TW18 4AE, quoting reference C9048.

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D.P. MANAGER (DESIGNATE)

NORFOLK To £9000 + Car
This position will suit an experienced Analyst/Programmer with 4 years' experience in COBOL gained at a 2003/4 site. The successful candidate will be promoted to the position of DPM after a qualifying period. Full relocation costs will be paid. Ref. M3741

D.P. MANAGER SOUTHERN IRELAND

£7000 + Car
Our client, a part American owned transport company, are seeking someone to be fully responsible for the EDP Department. At least two years analytical experience together with a programming background using RPG/II or COBOL. Full relocation costs paid. Ref. B3748

OPERATIONS SUPERVISOR

MIDDLESEX c. £6000
A leading manufacturer are seeking someone with a minimum of 4 years' operations experience in DOS/VS POWER/VS, with JCL knowledge. The ability to delegate and supervise is also essential. Ref. B3634

CHIEF OP (DESIGNATE)

MIDDLESEX To £5750
Initially to act in the role as shift leader (days only at present). Our clients are utilising their first computer, an IBM 4331 in late February/early March. Applicants should have a strong DOS background. Ref. B3670

SENIOR OPERATOR

HAMPSHIRE c. £8000
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SENIOR OPERATOR

SURREY c. £8000
Applicants should be at senior operator or shift leader level and have gained their experience working with large mainframes. Ref. M3747

SENIOR OPERATOR

WEST LONDON c. £8000
Mainframe with communications experience is required for this PDP site. This is a challenging position where total involvement is a must. Ref. M3711

SHIFT LEADER

WEST LONDON To £5574
The position would ideally suit a senior operator who is seeking career advancement. The successful applicant will have at least two years' DOS/VS POWER/VS experience. The site operates on a 2 shift system. Ref. B3633

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LEICESTERSHIRE c. £7000
A mature person with 3-5 years' Systems Design experience to work on a wide range of commercial applications. The successful applicant can look forward to a rewarding future with this company. Ref. M3088

WARWICKSHIRE COUNTY COUNCIL MIDLAND ROAD CONSTRUCTION UNIT HEADQUARTERS

Team Leader Programmer

Grade P.O.1 (6-10) (£7,125-£7,908)

Applicants are invited for the above vacancy at the Headquarters of the Midland Road Construction Unit in Leamington Spa. The Unit is responsible for Motorway and Trunk Road projects for eight Midland counties and the successful applicant will head a support section, working on a variety of applications in the field of Highway Engineering.

Systems Analysis would form a vital part of the work and applicants should have a degree in a numerical discipline and had several years' experience in a scientific/technical computer environment, including good experience of I.B.M. 370/3031 machines.

The appointment will be on the staff of the Warwickshire County Council and subject to the National Scheme of Conditions of Service, the Local Government Superannuation Acts and the production of a satisfactory Medical Questionnaire.

Settling-in allowance up to a maximum of £800 is payable in appropriate cases.

Equal opportunities policy - applicants are considered regardless of marital status, race or sex and the Council welcome applications from registered disabled persons with the necessary abilities.

Application forms can be obtained from the Director, Midland Road Construction Unit, Brandon House, 52-54 Holly Walk, Leamington Spa, to whom they should be returned by not later than Friday, 15th February, 1980.

D. G. Fuller, County Secretary, Shire Hall, Warwick.

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SYSTEMS ANALYST

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The ideal applicant should have sound business analysis experience together with good communication skills. The ability to liaise at management level is essential. Generous fringe benefits are offered. Ref. B3749

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SOUTH COAST £6000-£8000
Our clients are seeking programming staff with a minimum of 1 year of Fortran and/or Algol experience to be involved in their design of integrated circuits. Attractive large company benefits apply together with relocation costs where necessary. Ref. B3708



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An ICL GII operator is required for this DAYS ONLY contract in North-West England. Immediate start. 4-8 months. Ref. CM585

IBM DOS operators required soon for part-time weekend work in London. Ref. MH561

A DATA 100 operator is required for 2 months immediately DAYS ONLY. Ref. MH570.

We need all types of PUNCH, VDU and DDE operators for various London and Home Counties jobs. Ref. CM/JW

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You may currently be a business analyst seeking greater scope and responsibility for total projects from start to completion. On the other hand you may be a systems analyst wishing to move away from pure D.P. to a more corporate role.

Whatever your present function, if you have a thorough understanding of what makes a company tick, this could be the opportunity you have been waiting for.

For more information contact Jack Collings at his office from 9 a.m. - 6 p.m. on 0273-833848, or if you prefer, speak to him any evening (including weekends) at home after 7 p.m. on 0273-400880. Failing that, just simply send in your career resume and we will get back to you.

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YORKSHIRE WATER AUTHORITY SOUTHERN DIVISION

COMPUTER TERMINAL OPERATOR

G3 (E4286-E4722)

Applications are invited for the above post based at Castle Market Building.

The successful applicant will assist the Computer Operations Supervisor in the running of the Computer Operations Unit including allocating and checking work and deputising in the absence of the Supervisor. The duties of the post will also include responsibility for the operation of the ICL 7503 computer terminal which is connected to the Authority's ICL 2970 computer located in Bradford, and assistance with data preparation work as required.

During the next few months it is planned to replace the existing computer terminal and card punch and verifier machines with Molex Data Sciences Series 21 key to diskette and terminal equipment and experience of this or similar equipment would be advantageous.

Candidates should have proven experience in operating a computer terminal and data preparation equipment.

Applications quoting Ref. No. 86/80 and stating age, qualifications and experience should be sent to the Division Director, Yorkshire Water Authority, Southern Division, Castle Market Building, Exchange Street, Sheffield S1 1GB to arrive not later than 8th February, 1980.

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TRANSPORTATION PLANNING
POST NO. 3002088
SALARY GRADE SO.1/80.2 (£5,721-£6,827)

Applications are invited from suitably qualified and experienced persons for the above post in the County Transportation Unit.

The County operates an IBM 370/148 system using V.M./C.M.S. and there is a remote V.D.U. situated in the County Planning Department for Transportation planning use.

The successful applicant (m/f) will be expected to control the use of, and to maintain and further develop computer programs for transportation planning. Preference will, therefore, be given to applicants who have a knowledge of transportation planning systems. An ability to program in Fortran is essential.

Applications, giving full particulars of age, experience, qualifications and present appointment, including existing salary together with the names and addresses of two referees, should reach the County Planning Officer, Martin Street, Stafford ST1 1G 2LE, by 18th February, 1980.

Relationship to any member or Senior Officer of the County Council must be disclosed.

Staffordshire County Council

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Your brief will be that of troubleshooter including converting line managers to D.P., and developing an organic approach to systems design in a commercial organisation.

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Telephone Peter Humphreys on Bristol (0272) 213151 or write to Harrison Cowley Executive Selection, 35 Queens Square, Bristol BS1 4NQ.

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You will have with you Office Computer Services staff on implementation, operation and development of financial and non financial systems. You should have appropriate educational qualifications and have other a programming, systems or computer operations background.

Application forms from: Personnel Officer, North West Water, Pennine Division, London House, Oldham Road, Middleton, Manchester, M24 1BD.

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The above Post is open to both men and women.

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Telephone: The Computer Manager, Paul Offen, on 01-892 4500 Ext. 343 for further details and application form.

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Reporting to the Financial Director, the D.P. Manager will play an important role in the development of the company's Stock Control, Cost and Financial Accounting, Payroll and Production Control.

A generous salary will be offered commensurate with the importance of this position and the previous experience of the applicant, together with the other benefits of working for a progressive public company.

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For further details, please contact: Roger Allington, quoting Ref. FL20 OCC Contracts Personnel 1 Shooterway Park, Birkhamstead Herts. HP4 3NX Birkhamstead 2299 (day/evening) 04427-2299

MANAGEMENT SERVICES DEPARTMENT

This advertisement appears with the permission of the New Towns Staff Commission.

COMPUTER OPERATIONS MANAGER

P.O. 121 29827-47329

Applications are invited for the above post within the Computer Section. Experience of I.B.M. 370 series and terminal equipment is essential and a knowledge of C.M.S. (MIM) computer would be an advantage. The successful applicant will be responsible to the Computer Manager for the efficient day to day running of data control, data preparation and computer operations.

Application forms are available from the Management Services Office, Town Hall and City Centre, Sunderland, and should be returned by 14th February 1980.

L.A. BLOOM, Chief Executive

Borough of Sunderland

THE SALES BIT

Use truth to discover truth

BY and large every individual has a manner, an attitude towards other people and situations, which gives an outward impression of the kind of person they are. More often than not, one will grade another person into a "like," "don't like," "take or leave" category purely on the basis of this facade.

One of the most difficult aspects of human co-existence is the failure of most people to get behind this outward projection to ascertain the truth. The justifications for avoiding this precarious adventure range from insecurity to apathy, which is very sad when there is such a desperate need for better understanding in the world. What's the point in doing this? Quite a lot really. Any person-to-person interaction inevitably has to overcome the instinctive poses and affectations we consciously and subconsciously wrap around ourselves in order to hide our fears and vulnerability. This is as applicable to a buyer/salesman business interchange as it is to a man/woman relationship.

The important thing is to use truth to discover truth. The more pretentious the approach of one party, the more exaggerated the reaction of the other. The only way to have a chance of discovering the reality of another person is first to make an honest statement of oneself. In the selling situation a clear and truthful pronouncement of one's product, company, personal attitudes and intentions is the only viable basis for establishing an empathetic and effective buyer/salesman relationship.

Achieving this level of trust and understanding is not easy, but having got there it would be foolish to assume that the process is complete and inviolable. Like marriage, which after all is just one of a multitude of human relationships, one continually has to strive to make it work. If you take it for granted it inevitably goes sour.

One of the best devices for destroying a human relationship is inconsistency, and this relates as much to attitudes as actions. Salesmen can easily destroy years of effort in establishing personal credibility by a single instance of uncharacteristic behaviour.

A good example of this situation is the fluctuating attitude some salesmen employ, depending on the status/rank/degree of influence of the person they are addressing: sub-dominant to some, rude and offhand to others. This is a rather unintelligent, puerile attitude, for it assumes that the variety of parties concerned never interact.

For instance, the caller who gives the telephonist/receptionist a bad time because she can't locate the person he wants, or is rude to a secretary who fails to provide the information he requires, yet, within microseconds, is courteous, helpful, all sweetness and light to the chief executive.

Managing directors do speak to telephonists and secretaries, do quite adequate enough to the contrary. The inconsistency that such conversations reveal can not only destroy a salesman's credibility, but even worse, he is unlikely to realise that his cover has been blown.

Like any kind of good professional reputation, it takes years to win it and seconds to lose it.

TRADER

BOOK REVIEW

Guide for directors

The Director's Guide to Computing, £1.95. The Institute of Directors and National Computing Centre, Oxford Road, Manchester, M1 7ED. Tel: 061-228 6333.

IT is a well-known fact of company life that few directors are knowledgeable on computers. Unfortunately, this could remain the case after reading the second edition of "The Director's Guide to Computing".

Even directors deserve better data than this seemingly random collection of complacency dashed out by assorted DP consultants. If only someone had thought of this. It is an article or two from DPMs, then some practical realism might have been heard in the board room.

In a comforting introduction, the director general of the Institute of Directors confirms that, in his view, computers are here to stay. David Filmer, until recently director of the NCC, however, believes there is a need to break down the barriers between the computer team and the rest of the organisation. His solution is to call on outside specialist advisers. There would be no shortage of volunteers.

The bulk of the booklet is taken up with helpful advice from industry advisors covering such areas as computer bureaux, finance, training and software. However, some balance is restored by the final article by Tony Hardcastle, president of the IDPM. "Ignore computer technology," he tells the directors, "at your peril — it won't go away."

Perhaps even better advice would be to encourage senior management and directors to spend an hour or two in their computer sections. Barriers could then fall faster than the price of P.C.M. disc drives. Should the book run to a third edition, space should be found for the voice of the workers, from the installation shop floor.

FOCUS

Puzzle Answer

THE three numbers are 44, 117 and 240.

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Further particulars and application forms, which should be returned to him by 22 February 1980, are obtainable from the Senior Assistant Secretary at the same address.

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Further details and application forms from the Personnel Officer, Chelsea College, Chelsea Manor Street, London SW3 3TW. Informal contact can be made with the Manager of the Computing Centre on 01-736 1244.

Closing date 22nd February 1980.

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Application forms and job description are available from the General Manager's Department, Harlow Council, 17 Adams House, The High, Harlow, Essex, CM20 1ED. Telephone Harlow 2662, Ext. 88. Closing date 18th February 1980.

HARLOW

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